SOFTWARE COVERED: 3DS MAX • BLENDER • MAYA • CINEMA 4D • POSER • VUE

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3DArtist

14

Practical inspiration for the 3D community

• Feature

Stereoscopic 3D is here

Latest filming techniques and hardware revealed

In the Workshop

- Animate laser beams
- Optimise mental ray
- Custom Poser maps
- Wet Max materials
- Creating icebergs

• Vue tutorial

Create a landscape

Construct the perfect fantasy scene with woodlands and water

MATERIAL CHANNELS

Use them to create realistic texture finishes to your renders

• Interview

Return of the Triffids

How Painting Practice created the creatures

DIGITAL SCULPTING

Learn to create detailed figures with ZBrush and Mudbox

Mountains of models
Trucks, furniture and more

ZBrush video tuition
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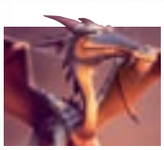
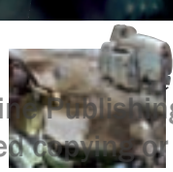


Add Disney-style details

Import a Maya mesh into ZBrush to add fine details



Create sci-fi characters

How 3ds Max was used to create space aliens and ships

Monster modelling

Sculpting, unwrapping, texturing and rendering

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Artist info

Chris Nichols

Personal portfolio site
www.porkpiesamurai.com

Country Canada

Software used
ZBrush, Maya, Photoshop

Cover artist

He might represent the unseen horror that could drive men and women insane but we think he's the cutest little monster we've seen. Check out the tutorial on page 46 for more

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Welcome

to the magazine and 116 pages of amazing 3D

Every issue you can count on...

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

Breaking news as this issue went to press was that *The Hurt Locker* beat *Avatar* for the Best Picture award at the Oscars. You might think that as a magazine which deals with 3D graphics we'd be rooting for the big blue epic to take home the top prize, but you'd be wrong. *Avatar* was an astonishing technical accomplishment created by numerous very skilled 3D artists. For that reason it was a deserved winner of the Visual Effects Oscar. It wasn't, however, the best picture – not with a recycled plot. Anyway, this issue we're delighted to bring you an interview with one of those amazing artists who worked on it. Enjoy.

Duncan Evans, Editor

This issue's team of expert artists...

Fred Bastide

It's an intergalactic battle between a race of slugs and a race of hedgehogs – all flying around in spaceships, of course

Christian Darkin

Working the 3D reviews section, Christian had plenty of rendering to do with all the 3D apps we give him

Paul Francis

Paul is our Poser expert and comes up with all manner of tips and ideas to make your Posing life as easy as possible

Lance Hitchings

Lance runs a design studio in the States, and also comes up with solutions for all your general Maya-related problems

Dominic Davison

Our resident Vue expert creates images that mortals can only dream of. Dom is here to reveal all about Vue

Daniel Lovas

The guy with CINEMA 4D in his DNA is a sci-fi enthusiast but can solve any problem you may encounter

Carlos Ortega

There's a naughty dragon on the loose, and Carlos is the man behind it. He shows you how to make Disney-style artwork

Andrea Horvath

Learn how to create a beautiful Elven Lake landscape with the help of Andrea and Vue. Check out the leaves on the water!

Chris Nichols

Discover how Chris created the amazing Cthulhu monster on our cover by sculpting the beastie with ZBrush

Ryan Knope

When he isn't busy in his architectural design studio, Ryan is available to answer questions on 3ds Max and Arch Vis

Ara Kermanikian

Want to know how to use displacement sculpting in Mudbox? Ara is the man with the answers in this month's Masterclass

Anto Juricic

What's that coming over the hill? Yes, it is a monster, but he's a caring, sharing crime against humanity. See how he was made here

Sign up, share your art and chat to other artists at www.3dartistonline.com

3DArtist

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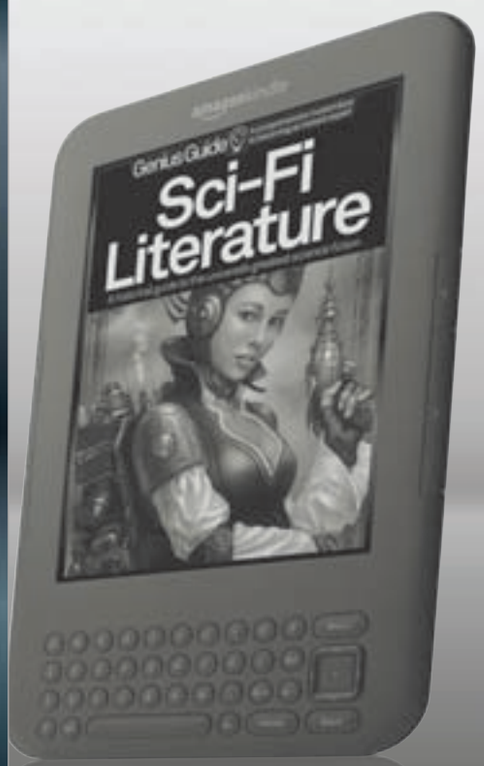

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Contents

Discover how these images were created...

70

Create a sad-looking monster

"I have always wanted to model Frankenstein's monster because he's a classic"

Four-page step-by-step walkthrough

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“First, I modified the water material; in the Highlights tab I set Highlight Global Intensity to 69%”

Andrea Horvath on setting the water properties. **Page 56**

The workshop

74 Masterclass: Displacement sculpting
Here's how to use Mudbox in a very clever way for your sculpting needs

76 Questions & Answers
This section is for users with some experience of 3D who want to know more

Maya: Optimise mental ray

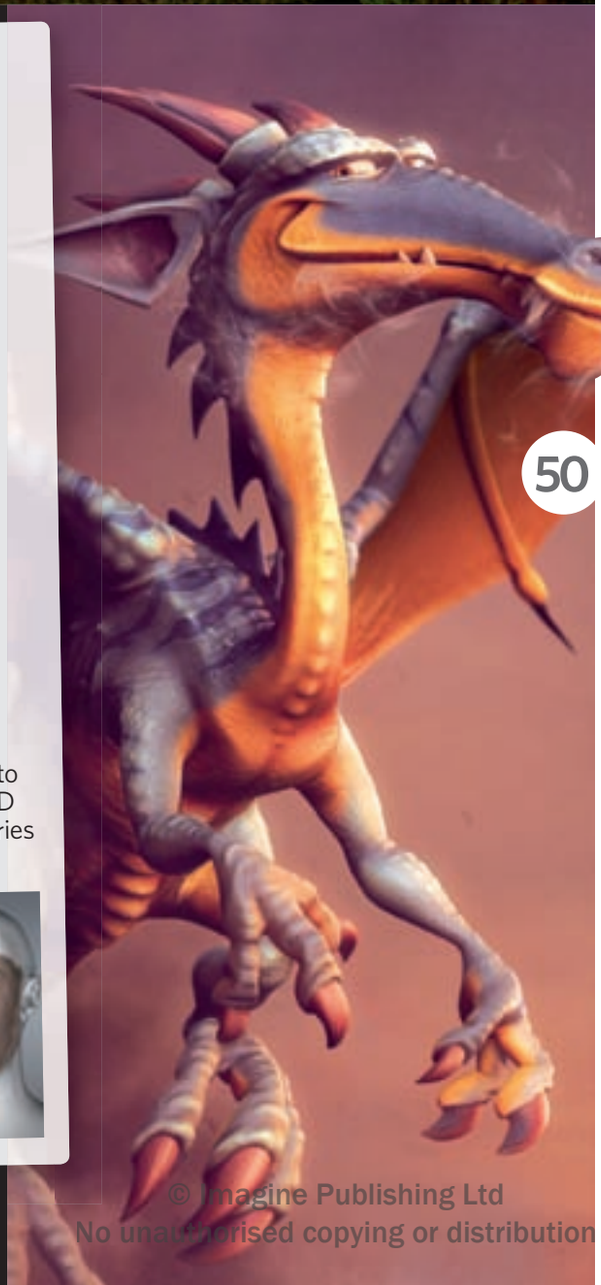
Poser: z-depth maps

3ds Max: Focal lengths

CINEMA 4D: Laser beams

Vue: Making icebergs

84 Back to Basics: Material channels
Everything you ever wanted to know about starting out in 3D modelling. Check out this series for beginners



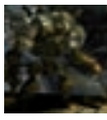
The studio

Professional 3D advice, techniques and tutorials

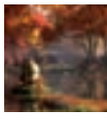
46 Step by step: *Cthulhu*
Don't look too closely at this Lovecraft-inspired monster or you'll go mad. Oh go on then...

50 Step by step: *A friendly dragon*
Here's how to create a charming Disney-style dragon with a knowing smirk on his face

54 I made this: Matt Olson, *Faceless Joe & Penny*
Admire the detail and soak up the ambience of this image

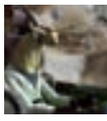


56 Behind the scenes: *Elven Lake*
Calling all you Vue fans. Check out the detail in this fantasy landscape, particularly the leaves on the water



62 I made this: Ce Shi, *Foraging*
Brilliant perspective and point of view for this reptile

64 Step by step: *Helix Rugens One*
Deep in space there's a battle raging between hedgehogs and slugs. See how it was made



68 I made this: André McGrail, *Suzuki Intruder 250LC*
It's a stylish motorbike on a black background – simply enjoy

70 Step by step: *Frankenstein's monster*
Anto Juricic has brought new life to an old story with superb sculpting

Continued overleaf

There's even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we've packed into this issue...

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INSIDE ISSUE FOURTEEN

Contents 14

Inspiration • Interviews • Reviews and more

11 The Gallery
All the amazing images from the world of 3D that we could grab

20 Community
News, readers' images, movie focus and letters from the 3D community

30 Interview: Unexpected GmbH
German design studio making some of the best CGI adverts we've ever seen

36 Feature: Get set for stereo
All the latest 3D developments, from TVs and glasses to software and films

42 Interview: Return of the Triffids
Painting Practice reveals the techniques used to bring the vegetable monsters to life

46 The Studio
A world of tutorials and insights

74 The Workshop
All-new section with Masterclass, Q&A and Back to Basics

88 Review: Bonzai 3D v2
The latest version of the 3D modelling program is assessed

90 Review: Modo Studio Kit
Get that professional finish with a set of studio lights for Modo

92 Review: PSP PHOTO X3
A cheap alternative to spending a fortune on Photoshop

93 Review: Vue 8.4
Update for the landscape creator program that fixes a world of bugs

94 Reviews: Books
A selection of the latest books from the 3D world

110 Subscribe today!
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112 On the CD
Wander along to see the range of goodies on the CD in this issue

See your artwork here...
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Share your art, comment on other artists' images

"Based on the success of *Avatar,* we expect to see rapid adoption of virtual production techniques"

Marc Petit, Senior VP, Autodesk Media and Entertainment. **Page 36**

workspace 3D

Inside guide to industry news, studios, expert opinion & education

98 Industry news
Latest industry developments and announcements revealed

100 The Insider: Tamir Diab
The lighting technical director for Weta reveals all

102 Uni focus: Supinfocom, France
We take a look at the acclaimed 3D courses on offer

106 Studio Access: Black Rock Studios
Ever wanted to get a job as a technical artist for a games company? Find out how here

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It's a jungle out there. Swing through it

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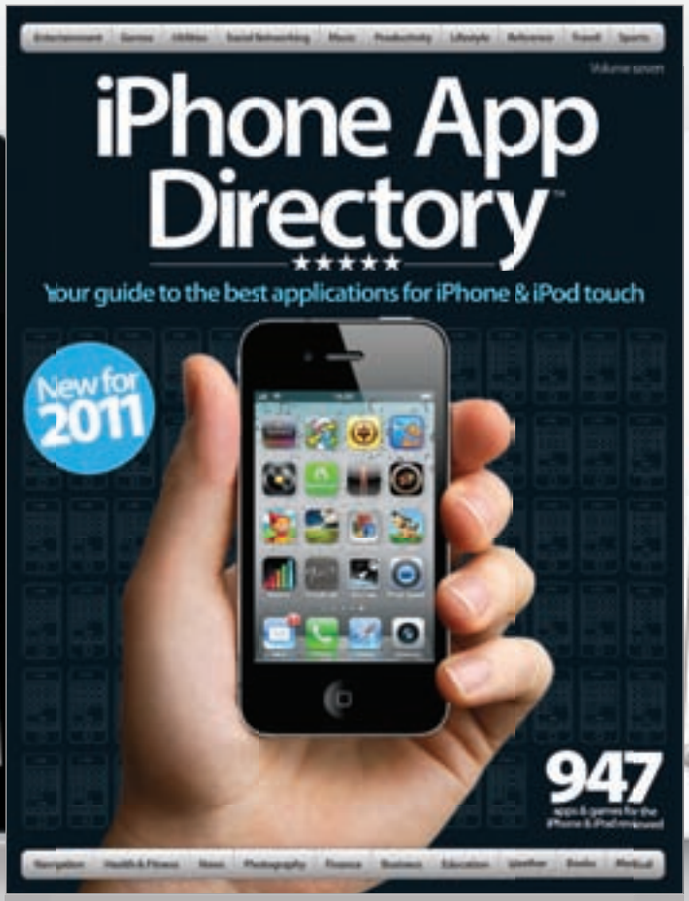

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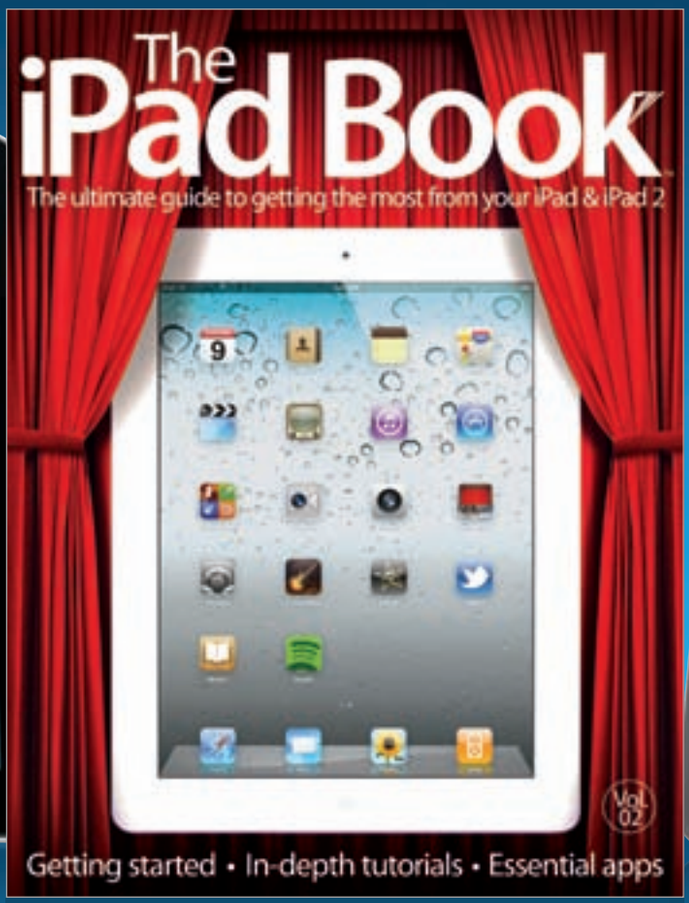
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WELCOME TO THE GALLERY

Nine pages of great artwork from the 3D community

Images we love!

> Ciku Cakas is an old Latvian name for intricate detail and ornamentation; it felt like an appropriate name for this image. I was inspired by lavishly decorated European palaces, especially interiors made in Baroque and Rococo styles. Hopefully, I succeeded in recreating some of the grandeur of a bygone era

Austris Cingulis, *Ciku Cakas, 2010*

Artist info

Austris Cingulis

Personal portfolio site http://austris.cgsociety.org/gallery/

Country Latvia

Software used 3ds Max, V-Ray, Photoshop

Work in progress...

Featured artists

Austris Cingulis

Who lives in a room like this? Check out the opulent feel

Nekrasov Alexandr

Sporty cars racing around tight mountain roads at sunset

Hugo Silva

Very engaging retro style gas station with daft looking robots

Sven Juhlin

Red Sonja without the red hair and with the benefit of furry boots

Javier Leon

It's a fab Wallace and Grommit style miniature CGI film set

Aleksandar Jovanovic

Check out the modelling and gloomy atmosphere

Lee Davies

More gas station frolics this time with the goofiest couple

Comment on more great 3D art...

Head straight over to **www.3dartistonline.com**, register and you can leave comments for other artists. Some of the people featured here already have their galleries, so get online and join our club!

Get your artwork featured in these pages

Simply send it to the **3D Artist** Gallery. Here's how...

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www.3dartistonline.com

2. Upload your images

Once registered, you can upload images to your gallery – there's no limits on numbers but check the size criteria.

3. Tell us about them!

Have an image you feel passionate about? Drop editorial an email at **duncan.evans@imagine-publishing.co.uk**.

Email or post

You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

duncan.evans@imagine-publishing.co.uk

The Gallery, 3D Artist, Imagine Publishing, Richmond House, 33 Richmond Hill, Bournemouth, Dorset BH2 6EZ

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> The idea was to create the artificial lighting so that it reflected the background and gave it a more expensive and exciting look

Nekrasov Alexandr, *Chevrolet Lacetti,* 2010

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Artist info

Nekrasov Alexandr

3DArtistonline.com
Username Nekrasoff-3d

Personal portfolio site http://nekrasoff-3d.cgsociety.org/gallery/

Country Russia

Software used 3ds Max, Photoshop

Work in progress...

The team Loves

"Nice car design and paintwork that really comes alive with the setting it's been composited into"

Duncan Editor

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Artist info

Hugo Silva

3DArtistonline.com
Username hugodesign

Personal portfolio site
www.hugodesign.com
Country Portugal
Software used 3ds Max, Fryrender, Photoshop

Work in progress...

The team Loves

"This dynamic image makes great use of colour and lighting. The robot in the foreground helps to add extra depth of field"

Luke Senior Designer

"This image is inspired by the retro steam robots and also by a few animation movies. My goal was to achieve a funny scene with some cute robots. So, Kettlight's tyre needs some air and it's time to find help for Tvtoasty in the gas station, but be careful with Steamy, he likes moving rubber tubes! The whole scene has 260 hand-painted textures in Photoshop (Diffuse, Reflections and Bump Maps) at 2,048 x 2,048, and finally rescaled to 1,024 x 1,024 for the scene"

Hugo Silva, *Gas Station,* 2010

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Artist info

Sven Juhlin

Personal portfolio site
www.daybreakcg.com

Country Sweden

Software used Maya, ZBrush, Photoshop

Work in progress...

The team Loves

"The contrasting metal, leather and fur materials are used perfectly to depict this beautifully fierce female warrior"

Lynette News Editor

"This image was created for my portfolio when I had some time between jobs, which is always fun for me since I can do whatever I want and don't need to follow any guidelines other than my own. It started as an attempt to create Red Sonja from the *Conan* movies, but I decided to remove the characteristic plate bra and her long, red hair, and go with a skull helmet and fur bra instead"

Sven Juhlin, *Jinx,* 2009

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Artist info

Javier Leon

Personal portfolio site
www.inbitwin.com
Country Serbia
Software used Autodesk Maya, Pixologic Zbrush, Photoshop

Work in progress...

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"I made this image trying to achieve the feel of a traditional hand-made miniature set from a stopmotion movie. The inspiration came from lots of stopmotion movies like *Coraline, Fantastic Mr Fox* and *Wallace and Gromit*. *Amelie* was also a strong influence in terms of colours"

Javier Leon, *Stopmotion Set CGI*, 2010

The team Loves

"Check out the detailing on the fabrics and textures. The feeling of miniaturisation works wonderfully"

Luke Senior Designer

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‘Harbour’ is my latest personal project. It was an intensive scene to assemble and render, but I enjoyed the whole process and learned a lot. I tried to capture a feeling of an old, rusted harbour building just before sunset. Very soon it will be dark, cold and lonely on the surrounding docks. Everyone will retreat to their shelters, and wait for the new sunrise and a new hope

Aleksandar Jovanovic, *Harbour*, 2010

Artist info

Aleksandar Jovanovic

Personal portfolio site www.inbitwin.com

Country Serbia

Software used Autodesk Maya, Pixologic Zbrush, Photoshop

Work in progress...

The team Loves

Great modelling skills here with an intricate tower and an interesting story behind it as well. Great ambience

Duncan Editor

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The team Loves

Great stylisation in this desert gas station scene, with plenty going on to keep the viewer amused. The cow being abducted is a nice touch

Lynette News Editor

> Jeeves and Wooster manage a small remote desert gas station where they sometimes don't see visitors for days on end... Thought I'd take a break from shiny robots for a bit and create something fun for the portfolio

Lee Davies, *Jeeves and Wooster,* 2010

Artist info

Lee Davies

3DArtistonline.com

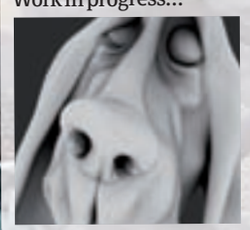
Username leemale

Personal portfolio site
http://leemale.cgsociety.org

Country Ireland

Software used Maya, ZBrush, mental ray, Photoshop

Work in progress...



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Maya Master, Loïc Zimmermann created himself as a 'digital double' to help him design and pre-visualise a tattoo

Top talents honoured by Autodesk

The 3D community has been nominating its Masters, and the results are in

World-leading design software maker Autodesk asked the 3D community to nominate talented artists from around the world for the 2009 Autodesk Maya, 3ds Max and Softimage Awards.

The nominees were all recognised as those doing exceptional things for and with the 3D community, and contributing to the advancement of Autodesk's tools. With the nominations in, it was then down to the public to vote – in their thousands – for who they deemed to be their Masters of Max, Maya and Softimage.

The 15 award winners comprise studio owners, company founders, educational trainers, freelance artists, directors, generalist CGI artists and artists working in the film industry – two of whom are both currently employed at Luma Pictures: Chad Dombrova and Loïc Zimmermann.

The one thing tying all these highly regarded people together is that they are all contributing to 3D art and technology to make it better for us all. And herein lies the purpose of the Autodesk Awards: to highlight "the best of the best" in the community and industry, and to honour them for their outstanding commitment and achievements throughout and prior to 2009.

Autodesk is now welcoming nominations from the community for the 2010 Master Awards, which will be presented to winners early in 2011. So if you know someone who is doing remarkable things in 3D using Autodesk tools, and you think they deserve congratulations for their dedication to CG, head on over to http://area.autodesk.com/masters/nominate2010 to register your nominations and have your say.

Winners

3ds Max Masters:

Riki Babington	http://riki.us/
David Baker	www.maxplugins.de
Ted Boardman	www.tbmax.com
Gus Capote	www.neoscape.com
Bohong Deng	www.dans.com.cn
Joe Gunn	www.joegunn3d.com
Tyson Ibele	www.tysonibele.com
Till Nowak	www.framebox.com
Luciano Neves	www.infinitecg.com

Softimage Masters:

Bradley Gabe	www.janimation.com
Adam Sale	www.joncrow.com

Maya Masters:

Chad Dombrova	www.chadrikvon.com
Jason Snyman	www.jasonsnyman.com
Daniel Widrig	www.danielwidrig.com
Loïc Zimmermann	www.e338.com

> "Autodesk is now welcoming nominations from the community for the 2010 Master Awards"

3DArtist online.com

Did you nominate or were nominated for the awards? Discuss this and more with other 3D artists at **www.3dartistonline.com/forum**

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3D events update

A guide to forthcoming events in the 3D art industry calendar

NAB Show
Covers 3D, animation, film, gaming, HD TV and more
Date 10–15 April
Location Las Vegas, USA
www.nabshow.com

CG CON – The White Conference
Covers Digital animation, modelling, painting and concept design
Date 24–25 April
Location Montreal, Canada
www.cgcon.net

CGTexpo
Covers Animation, VFX and gaming
Date May
Location Mumbai, India
www.cgtexpo.com

FMX 2010
Covers Animation, effects, games and interactive media
Date 4–7 May
Location Stuttgart, Germany
www.fmx.de

Cannes Film Festival
Date 12–23 May
Location Cannes, France
The word-renowned Cannes Film Festival welcomes film buffs and professionals alike to revel in culture as the latest budding filmmakers hope to emerge before your very eyes. Talents will be showcased for every taste, with programmes and events to help you discover cinema from a new perspective.
www.festival-cannes.com

Dimension3 Expo
Covers 3D technology, art, business
Date 1–3 June
Location Seine-Saint-Denis, France
www.dimension3-expo.com

Annecy 2010

Annecy International Animation Film Festival & Market
Date 7–12 June
Location Annecy, France
Annecy is the world's largest event dedicated to animation, boasting a fun and friendly atmosphere where attendees can discover the latest in animation and meet major players and up-and-coming talents. Whether you want to check out the trends or look for business partners, this is the place to be.
www.annecy.org

E3 Expo
Covers Computer and video games
Date 15–17 June
Location Los Angeles, USA
www.e3expo.com

Masterpiece

Expensive tastes

Self-taught artist Benjamin Brosdau achieves the realism that most can only dream of in his Chesterfield project

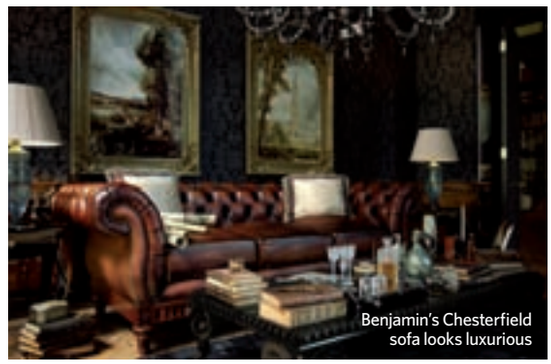
Benjamin Brosdau http://tora_2097.cgsociety.org/gallery

Having started out in 3D with the early versions of 3ds Max and Softimage, Benjamin now has over a decade of experience under his belt and is working at Pure Rendering in Berlin as technical director.

The Chesterfield project began with simple plans to model the iconic piece of furniture, but soon developed into an entire scene built around it. Taking many days of Benjamin's spare time, it was a steady process, with the final scene weighing in at around 11 million polygons and 60 hand-painted maps, all rendered with Maxwell in 3ds Max 2009.

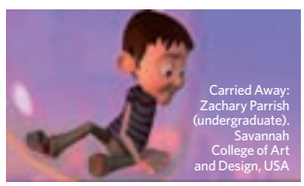
Benjamin told 3D Artist: "I was trying to achieve the same feeling of excessive, stylish richness that can be associated with 19th Century classic interior designs with their very sophisticated craftsmanship and expensive materials."

Some impressive detail on the glassware


Benjamin's Chesterfield sofa looks luxurious

Call for submissions

VisionFest invites students from around the world to submit their work

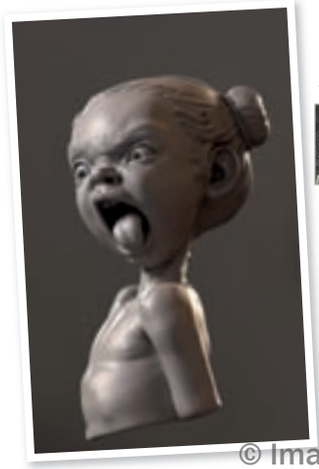

Carried Away: Zachary Parrish (undergraduate). Savannah College of Art and Design, USA

'Animation' and 'Games/ Interactive Arts' are the two categories offered up by VisionFest's 2010 competition, which has recently been announced for global participation. With each category split into three levels to separate high school, undergraduate and graduate students, all submitted work will be given fair recognition in this juried student animation festival and competition. The awards up for grabs are 'Audience Choice' and 'Overall Best-in-Category'; winners of the latter will even receive a cash reward. It's also interesting to keep in mind that the jury panels of previous VisionFest competitions have included key industry players from the likes of Industrial Light & Magic, Walt Disney and Blue Sky Studios, which should be reason enough to get involved. Head to **www.visionfest.org** for further information on how to create and submit your work for VisionFest 2010. The deadline for submissions is 28 July, and the animation festival will run from 22-24 October 2010.

Calling all artists

Ten24 seeks talent for new training shop

Owner of the recently launched training shop at Ten24, James Busby, is currently seeking artists to contribute to the growth of the company in the form of written or recorded training videos in any software, models, and textures and references. On offer in return for these contributions is a competitive profit-sharing package, which Ten24 says you won't be able to find elsewhere. So if you have ideas for contributions to help Ten24 expand its training resources, visit **www.ten24.info/blog** for further information on how to get involved.



3D Sketchbook

Doodling in the third dimension

Having moved over from traditional art, Bogi Piroth now produces 3D works with a unique style

Bogi Piroth http://mikkamakka.cgsociety.org

Hungarian 3D modeller Bogi Piroth originally started out in the art world as a traditional artist, before being persuaded by her boyfriend to take up CG just five years ago.

Generally her sculpts begin life in Maya where she models her very simple base meshes. Taking them into ZBrush – sometimes with the extra helping hand of Mudbox – she then captures the endearing expressions of her characters, either using references for anatomical details or doodling from ideas that have formed in her mind. She describes her process as "chaotic", but whatever her methods, it's clear that she has the ability to capture life and soul in her work, whether the outcome aims to be realistic or stylised.

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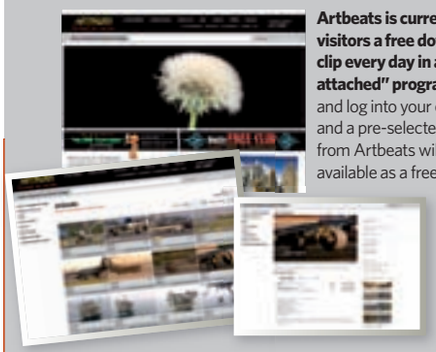
Free 3D Resources

Free 3D tools and assets

Add these free tools to your arsenal – there's everything from HD stock footage to backup and recovery software

Artbeats

Not just royalty-free, but actually free HD stock footage
Web: www.artbeats.com



Artbeats is currently offering visitors a free downloadable HD clip every day in a "no strings attached" programme. Just register and log into your online account, and a pre-selected clip worth $299 from Artbeats will be made available as a free download for 24 hours every day. Quickly build up a royalty-free HD content library for absolutely nothing!

Paragon Software

Take control of your PC's safety with this free backup and recovery package
Web: www.paragon-software.com

A free edition of Paragon Backup & Recovery 10.1 is now available for PC users, providing backup and disaster recovery for standalone desktops and laptops. Easy to use and hassle-free, this free software will allow you to take complete control of the safety of your PC, so take the first step towards complete PC protection and download the free edition today.

Maxon Cinebench

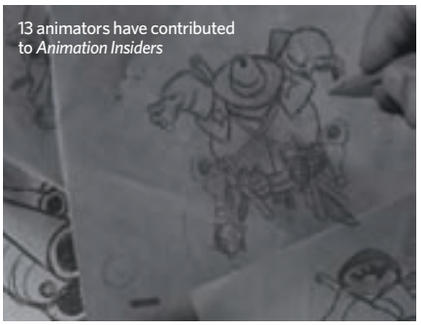
The perfect tool to compare CPU and graphics performance
Web: www.maxon.net/en/downloads/downloads/cinebench

Maxon has released Cinebench 11.5, a free tool to evaluate your computer's performance capabilities. Based on Maxon's animation software, Cinema 4D, which is used by studios and production houses around the world, Cinebench can compare CPU and graphics performance across various systems and platforms, helping you to understand the power of your PC when it comes to rendering those complex 3D scenes.

Inside animation

Talented animators share their thoughts, experiences and workflow tips to help you improve your work

Industry professionals have generously contributed to a new book that aims to inspire, enhance and even change the lives of its readers. *Animation Insiders* is intended to be a platform for animators working in the industry – including Mike Nguyen and Jason Schleifer – to share their advice and techniques with an audience, with a view to bettering the lives and animation practices of those who read it. And in a strange twist of fate, some of the artists who contributed to the book's pages have also changed their own lives considerably as a result of working in collaboration with such honest input.


13 animators have contributed to *Animation Insiders*

Animation Insiders will be released in April 2010; more information on the book and its authors can be found on the dedicated website: www.sstudiopress.com.

work in progress

Neo-Gothic architecture

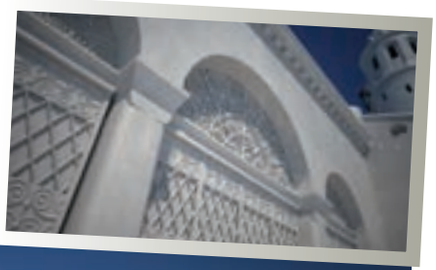
Rudolf Herczog explores neo-Gothic and neo-Romanesque style architecture in his latest work-in-progress, based on the Fisherman's Bastion – one of the most popular tourist spots in his hometown, Budapest.

Rudolph Herczog www.rochr.com

Born in Budapest, Rudolf has a natural affinity with the Halászbástya, otherwise known as Fisherman's Bastion.

This, coupled with the fact that he has never before seen it modelled in 3D, gave him the inspiration to create his own interpretation of the beloved architecture, using Cinema 4D, Maxwell Render & Photoshop.

He started this personal project in September 2009, and has so far dedicated around 60-70 hours to the model alone. With a few props still left to tweak before he can start working on the texturing and final rendering, Rudolf explained the difficulty of the project: "Not only because of the sheer size and level of detail with a large amount of modelling involved, but it's also really hard – if not impossible – to find plans for the buildings, which means relying solely on photos not necessarily of the best quality."



Rudolf's work-in-progress model of Fisherman's Bastion

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Artist spotlight

Industrial roots

Inspired by nature and mechanics, Tomasz Strzalkowski explores industrial and organic forms in Maya and ZBrush

Tomasz Strzalkowski http://tomstrzal.cgsociety.org/gallery

By day, Tomasz Strzalkowski is lead asset artist for the Polish games company, People Can Fly, but in his spare time he enjoys nothing more than to relax with some good music and develop his personal portfolio.

Roots and *Tree* are two non-commercial works that were inspired by a combination of industrial and organic forms – trees in particular. Using his spare time wisely, Tomasz creates these 3D stills as a way to develop and hone his skills, modelling in Maya and ZBrush, and texturing and creating his backgrounds in Photoshop. The results are both intriguing and unique, which stand out in the CG community as more abstract and surreal interpretations of the world around us.

Tomas's work combines the organic and industrial

Software shorts

Get the lowdown on updates and launches

Vue 8.4 released

E-on software has released Vue 8.4, a major update to its award-winning Vue 8 solutions for digital nature, available at no cost for all registered users. With many new features and major improvements to technologies, Vue 8.4 boasts overall productivity and workflow enhancements. More information on the new features can be found at www.e-onsoftware.com.

Massive 4 supports V-Ray

Massive Software, developer of the award-winning 3D animation software for AI-driven characters, has released Massive 4.0. This now supports V-Ray rendering, new terrain nodes, enhanced brain nodes and agent fields, as well as myriad additional features and improvements. Visit www.massivesoftware.com for further details.

Tools of the trade

MALE ANATOMY FIGURES

Desktop-sized models for accurate anatomy every time

Freedom-of-teach offers three versions of the 24-inch male anatomy figure, which many artists worldwide rely on as a helpful reference for their creative work, when life drawing – and autopsy – classes are difficult to come by.

Version 1 comes as a hand-painted, cold-cast polyurethane figure with removable magnetic parts. Version 2 is a neutral matt grey model with incredibly high detail and accurate proportions, designed specifically for artistic study and to provide the light and shadow values you might find in natural or studio lighting. Finally, Version 3 is a medical-quality reference, with its deeper muscles and a partly revealed skeleton, hand-painted to describe the bones, muscles, tendons and muscles inherent in the male body, this one is for the serious artists out there.

Also available are female versions and smaller artist-reference busts, all by modeller, sculptor and VFX artist, Andrew Cawrse. More information can be found at www.freedomofteach.com.

All three versions come with a quick-reference muscle name chart
All images © Freedom-of-Teach. All rights reserved.

3DArtist online.com

Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at

www.3dartistonline.com

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Picture of the month

Strap yourself in for a wild ride through the stellar imagination of the 3D Artist readers. This is your gallery, enjoy!

Ⓐ

Ⓑ

Ⓒ

Ⓐ Towards Kharkov
» **Dieter Meyer**
Dieter says: "Two Marder IIIHs pause to observe their advance and look for possible defences as they head towards Kharkov. They would soon be involved in the third battle for the city."
We say: Love the white, freezing conditions in which the tanks are operating.

Ⓑ Stingray
» **Tyree R**
Tyree says: "This image is of the Stingray, which is a single-seater concept vehicle."
We say: The alloys look a little angular, but the smooth lines of the rest of this concept car are fantastic.

Ⓒ Force of Nature
» **Toni Bratincevic**
Toni says: "This image is intended to depict the last fight of Mother Nature, trying to save the Earth."
We say: A great balance between the environment and industry – and sends a compelling message as well.

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Share your art
Register with us today at
3DArtist online.com
www.3dartistonline.com
to view the art and chat to the artist

D

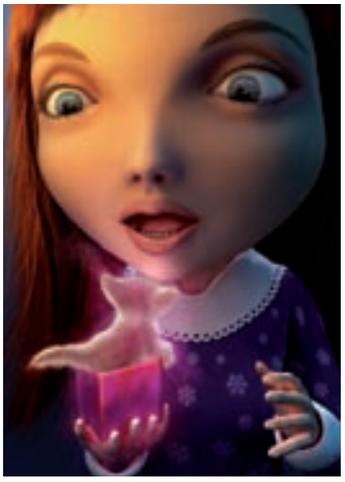
D Centuria
» **Jedrzej Tarkowski**
Jedrzej says: "SF, the future and my Android. A combination of old style and new."
We say: Nice character with a combination of old-school weaponry styling and shiny modern materials.

Pictures of the week

THESE ARE THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

Guardians
» **Rudolf Herczog**
Rudolf says: "More practice with matte painting. Base is a 3D render containing the right side buildings as well as some of the ground. The rest is a mix of photographic elements and painting."
We say: Great quality image – you can see this being a background for a sci-fi film.

Cupcake Store
» **Heidi Marenger**
Heidi says: "This store was inspired by Sonja's Cupcake store in the Philippines, it was part of my final project at school and I took great pleasure in creating it. Hope you all enjoy it and it makes you a little hungry."
We say: Good enough to eat. There's lots of detail in this image, from the cake to the hard surfaces of the fridge and the row of treats under the glass counter.



A Christmas to Remember
» **Andrzej Kuziola**
Andrzej says: "A little girl dreams of a pet and it comes true when Santa leaves her a magic kitten. Modelled in CINEMA 4D and ZBrush, textures painted in Photoshop and ZBrush and then rendered in CINEMA 4D. Postproduction done in Photoshop."
We say: Perfect image. Great colours, wonderful expression. It sums up small children and cute presents superbly.

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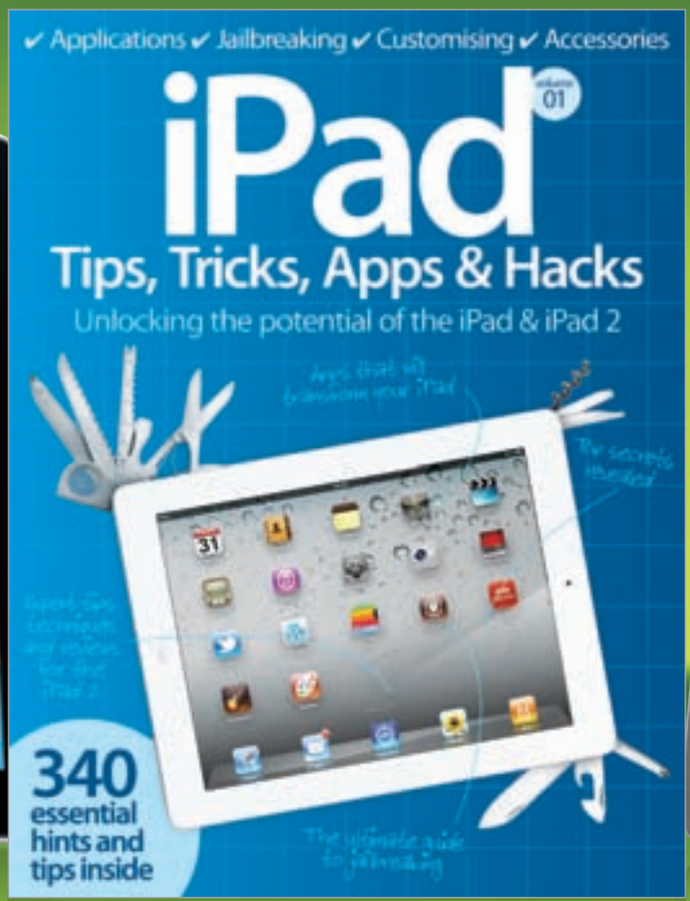
We don't keep secrets

iPhone
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

iPad



Printed full colour large format book

Kindle

Tips & Tricks™

Learn the truth about iPhone, iPad, Android, Photoshop and more with the Tips & Tricks series' expert advice and tutorials

Also in this series

Bookazines
eBooks • Apps
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Now available on

HIGH ST. BUY IN STORE — High street
amazon — Kindle Store
ip — ImagineShop.co.uk
App Store

Have your say

Write, email or use the website forums to get in touch about the magazine, your problems or triumphs

Send your letters to...

Email the team directly with your letter
3dartist@imagine-publishing.co.uk

Log in and leave your comments on the forum
www.3dartistonline.com/forum

POST TO:
The Editor, 3D Artist,
Imagine Publishing,
Richmond House,
33 Richmond Hill,
Bournemouth,
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BH2 6EZ, UK

Correction!

In the review of the Amari Magnetar F3 in issue 12 we incorrectly stated that the system came with 2GB of RAM. It actually comes with a handsome 8GB. Our apologies for this error.

Abstract art

Hello dear staff of **3D Artist**, I am Francesco Mai, an Italian digital 3D artist. I have just discovered your very interesting magazine.When you have time, please take a look at my site www.francescomai.com. I hope you enjoy my particular type of artistic research, which is 100 per cent digital.

Francesco Mai, by email

*Thanks for the mail Francesco, you've certainly got something interesting in development with these abstracts. Keep up the good work and feel free to share them with everyone at **3D Artist**.*

Poser argument rages on

Thumbing through issue 10 I found a letter that I saw in another magazine, and it still bothered me and prompted a response. Someone had written a letter asking if Poser was a viable start for a path leading to a career in 3D art and animation. Poser has gotten a lot better when it comes to animation, plus a lot of artists go to something else for animation anyway – and not a more expensive program.

Carrara, DAZ Studio, Vue and CINEMA 4D, just to name a few, handle animation of pre-rigged figures much better than Poser, and they don't cost an arm and a leg. There's even a book called *Character Animation in Poser Pro* if you are dead set on doing animation in Poser or Poser Pro. Plus, DAZ has the Animate plug-in and Movie Maker – and don't let me get started about iClone. All these are apps that are very approachable from a price and learning standpoint, and are excellent tools toward working with 3D animation.

Most readers of any 3D magazine think that viable, authentic 3D animation can only be made with the industry standards. How many people do you know who have $3,000 to just drop on some software? I don't know of any.

On a side note, **3D Artist**, out the gate with issue 1, has showcased the type of art that can be achieved by using Poser and DAZ Studio. I applaud you in that, and hope you continue to do so. I will continue to be a subscriber if you do.

Unlike other magazines, **3D Artist** doesn't seem to shy away from Poser and DAZ artwork if it's really good. To me, that means that artists like me need to step up their game to get showcased – but at least I have a chance to get showcased.

Derry D. Sexton, by email

We agree that it's down to the artist to make the best use of the tools they have, and each tool should be evaluated for what it has to offer.

Spiral Study
Interesting combinations of light and colour in Francesco's image

Mr Scopes

I recently got hold of the latest **3D Artist** magazine, an interesting and informative issue as usual. A few weeks ago I'd sent you my steampunk cyborg render, 'Mr Scopes', to perhaps feature in your gallery section, but you replied saying you'd prefer to place it on your letters page. All good. It took about three days to render all the passes at 3K, but any kind of exposure is nice, especially for a startup 3D creature/concept design business like mine. And there it sits on page 29 of this issue... by James Stothard, Oxford?

I realise you guys are usually very busy. I also realise you get quite a bit of your eye candy content from people like myself. But it would be really terrific if you could pay folk such as myself the courtesy of checking some basic details of the freely submitted artwork before you go to print... like who actually produced it?

Once again, looks like another excellent issue; keep up the great work.

Rory McLeish, by email

Our apologies for this Rory, so we're running the image again (above). 3D is hard enough without getting the proper credit for your work, so we're happy to put that right. As to how it happened? The letter was put through with the right name on it, so how it got changed is something of a mystery.

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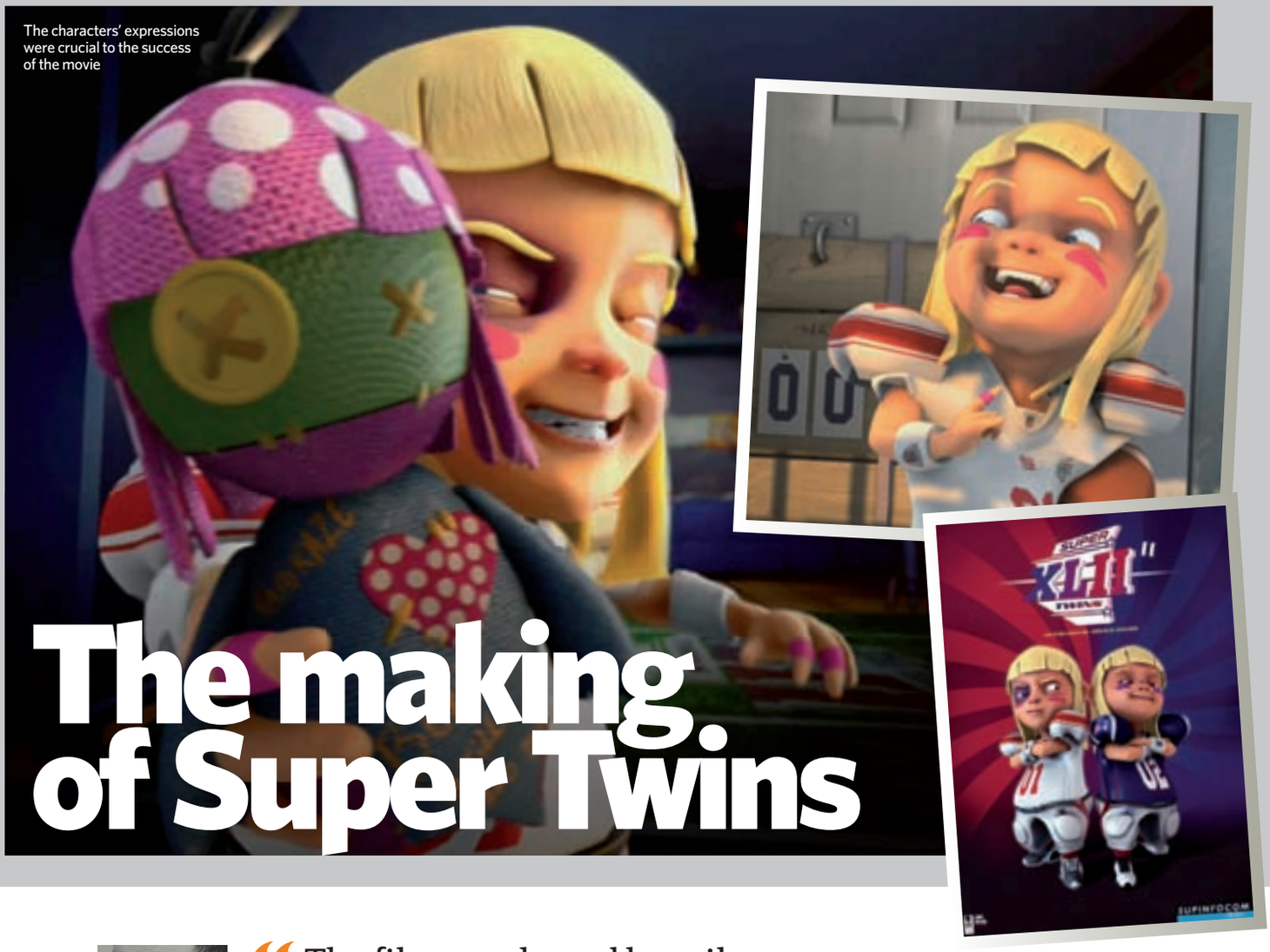

The characters' expressions were crucial to the success of the movie

The making of Super Twins

Arnaud Janvier
Personal portfolio site
www.janvierarnaud.blogspot.com
Country France
Software used 3ds Max, Photoshop, After Effects
Duration 1 min 20 sec
Year of creation 2009

> "The film was based heavily on animation, so the gestures the girls made were very important"

Supinfocom student Arnaud Janvier tells 3D Artist about the idea behind the short movie, Super Twins, as well as some of the problems inherent with his first-ever film production

Super Twins is a student's answer to a one-minute film brief on the theme of sports. In his third year of study at Supinfocom in Arles, Arnaud Janvier set about creating a short animation based on twin sisters, both American football fanatics. In the movie they decide to improvise and recreate the 42nd Super Bowl final, when the New York Giants went up against the New England Patriots.

Arnaud created the entire film with the exception of the sound. David Nicoletti handled the sound design, and the music was produced by Michael Fiorentini, all under the direction of Arnaud, who told them how he wanted it to sound at any one time. He told 3D Artist: "In a movie, the sound would be at least 50 per cent of the success of the film." Arnaud did all the rest: the scriptwriting, storyboarding, animatics, concept design, animation, lighting and more.

Students at Supinfocom get into serious 3D in the third year of the Digital Direction course. Pre-production is the most time-consuming part of the film creation process, as it involves presenting ideas to the teachers – who are in many ways also the producers, and if they think something isn't working they will get the students to start all over from the beginning. At the same time, students are learning new software and scripting – so it's quite the balancing act.

All in all, pre-production took Arnaud three months for this project. The process involved proposing dozens of scenarios to the teachers, as well as trying to amuse people with humorous situations, since he wanted the movie to be a comedy. If they laughed, the idea won!

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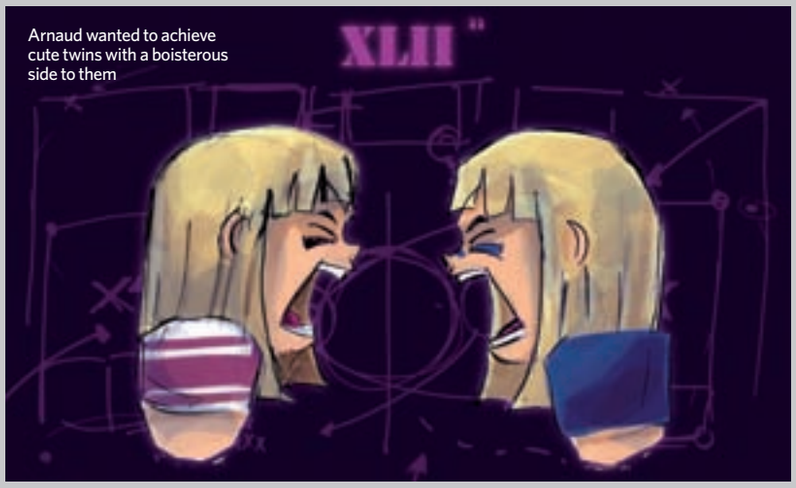

Arnaud wanted to achieve cute twins with a boisterous side to them

The set was designed to look like the twins may have reinvented the space for this big event

Pre-production

The concepts and storyboards have to be approved by teachers at Supinfocom, and if they're not up to par students have to go back to the drawing board. These early studies show the exploration of the 'Super Twins' characters and their actions.

Design-wise, Arnaud had a hard time finding what he wanted: the "little darlings" had to be cute but at the same time quite boisterous. The main problem he encountered when designing them was that they could easily look too adolescent, too boyish or even like little hobbits. However, with perseverance he discovered what he was looking for, using inspiration from childhood memories of himself and his brother when they were very young.

Production and postproduction together took another three months. With it being Arnaud's first experience of filmmaking, he encountered many problems within this time, perhaps most notably several computer crashes, which lost him a full day's work each time. "At this moment there are no solutions, you must take it with you and redo everything," Arnaud told us. "Hence the importance of being very organised, to avoid such problems."

Working with twins meant that Arnaud only had to model one character, differentiating them with the texturing. During production, the girls were kept as separate files, as was the set – this was the best way to stay on top of things. What made things even more difficult, however, were the many models he had to make and work with to stay in keeping with his designs of the children's room. He wanted the room to look like a typical kid's bedroom, but also give the impression that the twins may have rearranged it for the special event!

The film was based heavily on animation, so the gestures the girls made were very important. Arnaud wanted to surprise the viewer, so he didn't hesitate in his idea of making them footballers with attitude, and to help him understand his characters he created a library of expressions that would suit their personalities. But he couldn't spend too long just animating them, because he also had to handle the settings, lights and do postproduction. Arnaud said: "A 1,500 pixel frame has a five to eight-minute render time per frame!"

Supinfocom will now take 'Super Twins' to various film festivals for feedback, where Arnaud would be happy to have his work spotted by an interested producer who might like to make a feature film of it.

For more information on this short and to see his art book, you can visit the dedicated blog at **http://supertwinsxlii.blogspot.com**.

On the Disc

You can view this short movie in full on next issue's cover disc

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Key people

Steffen Hacker
Head of VFX, Compositor and Editor

Sebastian Badea
Character Designer and Lead Animator

Jörg Häberle
3D all-rounder with a passion for modelling, shading and particle systems

Claus Rudolph
Lead Compositor and handler of most of the 3D tracking and match moving

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Lynette Clee talks to the Unexpected team as they continue to raise the level and put Stuttgart on the VFX map

Passion in every frame

A *Snickers Rugby* Probably the best known spot from Unexpected. A rugby game on an aircraft bone yard in the middle of the desert

Company Unexpected
Founded 1999
Company website www.unexpected.de
Country Germany
Expertise Visual effects for commercials; art direction, design and conception; VFX shoot planning and set supervision; high-end 3D visualisations; stereoscopic content
Software used 3ds Max 2010, Nuke 6x, Adobe Creative Suite Master Collection, SynthEyes
Client list Saatchi & Saatchi (Istanbul), The Coca-Cola Company, Alfa Romeo, Bosch GmbH. Mercedes Benz, Vestel, Porsche AG, Honda, Snickers, Vodafone

> "Clients feel we have a passion for their images, not for their wallets, so agencies tend to come back to us because they know if we commit to a project we really care for it"
>
> **Alexander Kiesl** CEO, Head of VFX, Artist, Animator and Editor

Unexpected GmbH is an agency based in Stuttgart, Germany, that specialises in visual effects (VFX) and 3D animation. Divided into two departments, Unexpected works on different areas of production with a healthy amount of overlap. The corporate media section deals with industrial clients delivering high-end, state-of-the-art visualisations, animations and computer graphics – mostly for the car industry. They also program and develop entire setups for trade fairs, such as for the IAA in Frankfurt and the Tokyo Motor Show. The other department at Unexpected is their VFX unit that mostly handles commercials. What makes them different is that they work almost exclusively on ads that they are also creatively involved in, and that they also direct. This is what keeps the Unexpected team at their best: they can enjoy being artists that not only work for someone, but are creating their own visions at the same time.

3D Artist: *How did Unexpected start out? Can you talk us through that original moment of inspiration and how you went about setting up the company?*
Alexander Kiesl: Unexpected was founded in 1999 in Stuttgart by me and three other partners. Two of my partners had already studied at the Institute of Animation at the Filmakademie Baden-Württemberg, and I started studying animation there in 2000. It was a decision of starting a business on our own, trying to create something that was based on our passion for animation and movies. First we worked on small things like effects for music clips and small commercials, and then we found our first own client, Bosch, that we could convince to use 3D animations for its purposes. It took off pretty fast and soon we had it up and running perfectly. The VFX unit was founded in 2004, and since 2005 we've established ourselves in the commercial world, working all over the globe. Within the last ten years our crew has grown to a size of 40 people.

3DA: *How do you find your clients? Do they come to you or was there a time when you had to seek them out?*
AK: In the first year of Unexpected's VFX unit it was as hard as it is for every VFX company out there; we did effects for German TV shows, some commercial work and a huge German event movie, but we were lucky enough to concentrate on commercials that we could direct on our own over the years – that's why the boards and ideas rush in now: they find us, and agents in several countries all over the world make sure the cool ideas find their way onto our desktop.

3DA: *What makes Unexpected stand apart from other visual effects and 3D animation houses?*
Steffen Hacker: Basically, short methods

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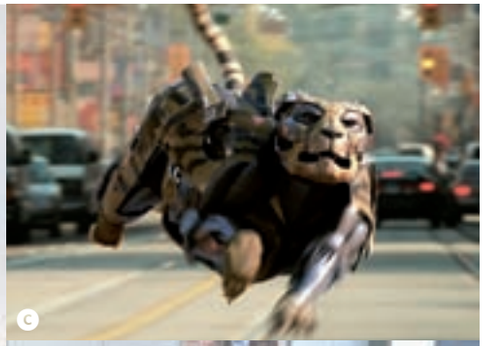

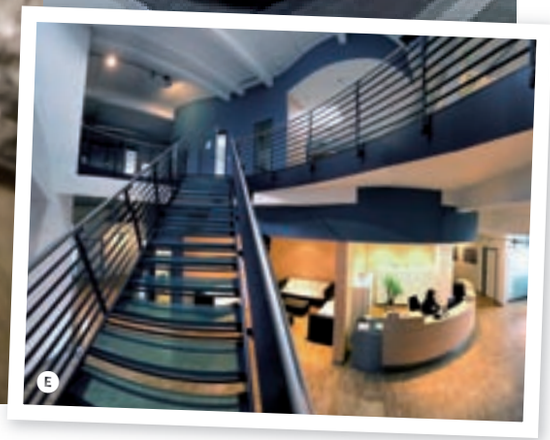

> We know what each individual artist at Unexpected can do – but we also ask from time to time what he wants to develop; where he sees his strength for future projects
>
> **Sebastian Badea** Character Designer and Lead Animator

B

of communication: we design characters in-house; we develop the treatments and storylines for the commercials we work on; we do the look-development, animatics, storyboards – everything until the final colour-correction. Other post houses do the same, but we have a smaller staff and the possibility of any creative loss somewhere in the chain of command is equal to zero.

3DA: *So you're based In Stuttgart, Germany, but do you have any other offices elsewhere or regularly travel with your work?*
AK: Stuttgart is a pretty good base for our corporate media department as we have lots of our main clients based right around us. Moving to another place was never an option or a question since we really love the close relationship we have to the Filmakademie and the whole visual effects scene we have in the area. It's not a matter of being based in Hamburg or Berlin, as you can work from pretty much everywhere.

As we are shooting our commercials all around the world and mostly not in Germany, we travel a lot. After we are done shooting we work on our spots with our VFX unit in Stuttgart, welcoming the agencies and clients at our facility. Most of them haven't been to Stuttgart before and we really enjoy showing them our city, which is really a lovely place. People don't think of Stuttgart when it comes to high-end visual effects for ads, but maybe we can help change that image.

3DA: *Out of the 40 staff now at Unexpected, who would be involved in a typical project, either in-house or on location?*
AK: The VFX unit has a permanent team of seven artists. With that size we can pretty much do the whole post-production for every commercial we shoot. Of course, we don't just do one job at a time, so we hire freelancers to reinforce our team and to get the workload done without too many nightshifts. We don't like to put too many artists on a job as this would mean we would lose the personal bond we have to each project and would end up in 'just doing jobs and getting the work done'. Every one of our team, including us as the heads of the VFX unit, works on shots. We don't like the strict structure where you have artists on one side and supervisors on the other; we pretty much work as a team and anyone from our team can come up with ideas and proposals and is allowed to be creative if it leads to a better result.

3DA: *Can you briefly talk us through your general pipeline for a typical client brief and what it would generally entail from the team?*
Sebastian Badea: A lot of our work features digital characters: together with a freelancer, we always create our character designs in-house and sometimes – for example on our work for Vestel – we already have the finished 3D model at the pre-production meeting with the agency and client before the shoot. If the shoot is too big, one of the team helps Alex and Steffen with VFX supervision on the set, but most of the time they do it while directing at the same time.

3DA: *What hardware and software do you use most often, and why is it essential to your production pipeline?*
SH: Before the real post starts – ie the editing – we fully rely on all CS4 products from Adobe. We edit with Premiere Pro, comp with After Effects and create DVD outputs with Encore DVD. Since we're entirely PC-based and these products are so well integrated with one another, this is a fast and smooth workflow that we've been using since day zero.

We're always amazed by what's possible nowadays; for example if we sit in the airport in Dubai, waiting for some hours, we can just unpack the notebooks to edit native RED-material from our shoot and come home with jetlag and an edit. Sometimes we can even present a final cut to the agency, where others are still loading material into their AVID. 3D tracking is done with SynthEyes at Unexpected, and we've just recently introduced Nuke 6x for compositing, in addition to After Effects.

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Key Project 1

Alfa Romeo MiTo

How would the *Space Invaders* classic game look in a 2010 version? Alfa Romeo and Unexpected show you the answer, Europe-wide on TV. On a skyscraper rooftop, a real (and in some shots photoreal CG) MiTo is fighting a horde of enemies and – in computer game style – a big boss at the end. A massive set extension around the parking lot (which was the Carrefour parking lot in Barcelona, in reality) showing a city's night skyline, a lot of digital camerawork, and all the enemies the MiTo is fighting, creates a fun ride for everybody who enjoyed playing the classic game and all its numerous successors. You can watch the spot and the detailed making-of on the Unexpected website.

3DA: *Let's talk robots! You blew the CG community away with your Snickers 'Tag' and 'Rubgy' TV spots. Can you tell us the history behind these, their successes, and what they led on to?*
AK: Yes, robots! This seems to have become one of our specialities. It all started with the first two commercials we did for Snickers where two robots played soccer on an abandoned steel factory. The agency allowed us to go even crazier on the second campaign with Rugby and Tag. They trusted us a lot and so we tried to come up with a crazy location and some action-packed shots. It was really enjoyable having so much freedom in terms of creativity and story. If you shoot and work on a commercial like this you tend to have a very special 'relationship' with the ad. You start to tweak every single shot until you're really happy with it. And after two days you watch them again and another idea pops into your head and you start tweaking again. I guess this is what makes us a bit different to other post companies. There's lots of passion in every frame.

This kind of working attitude and style opened the door to bigger projects, and somehow led to a lot of attention. The spots became quite popular and people hire us because they somehow like our style and our creative approach, as well as our love for details.

3DA: *Your latest TV spots for Vestel are stunning. Can you take us through what creating an advert like this involves for the team, and how long they take in production?*
AK: This job was awarded to us in a very unusual way, as the post-production was already awarded to a post house in London. The agency wanted us to direct the commercials, but we rejected the offer as we only direct spots if we can also work on the post, as this is the only way we can really deliver our vision of the ad. So we turned down the scripts. But the agency came back to us and told us that they really wanted to work with us and took the job out of the London post house – which was really a bit of a surprise for us.

So we started working on the creative together with the agency, working out some ideas of how to make the spots special, and started designing dozens of different designs for the robots. We aren't big fans of locked cameras, so we planned the spots with lots of camera moves and interaction between the robots and the kids to make it more fun. Of course, this way the post was more difficult, but much more fun – and we always like challenges.

All the spots were shot in Turkey, which was – and still is – a really cool experience. They work at a completely different pace and know how to build a set overnight! We're shooting spots seven and eight this very moment and we've learned that there are more to come. After delivering six spots last year, the agency and client trust us so much that we don't even have to present new designs or storylines to them.

3DA: *What are the most common problems you face when working on projects like these, and how do you overcome them as an individual or team?*
Jörg Häberle: Timing is a big issue. Of course, the projects have to be delivered as quickly as possible. Sometimes you just have a bit more than a week to finish the post. It's a fast-paced business and you really need to keep up the speed. But this way you find workflows that really make you quick.

B *Bosch Campaign*
We came up with a viral idea for Bosch and shot it on a test-track area

C *Snickers Tag*
Giant biomechanical animals chasing each other through the city canyons. Another Snickers ad from Unexpected

D *Honda Campaign*
The Honda ad shows the development of the car from an animator's perspective

E *Unexpected Offices*
The company's headquarters in Stuttgart are suitably modernistic and stylish

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Key Project 2

Vestel 'Game'

At the end of the first year for the Vestel campaign with the transforming robots, fortunately Vestel celebrated its 25th birthday. A perfect opportunity to bring all the previously created characters from all other ads of that year together in one big, action-packed commercial – and even introduce a new robot model.

Robots and kids play soccer on an abandoned harbour in Istanbul, as if they wouldn't do anything else on a summer's day. Suddenly they meet a long-forgotten friend: the first TV that Vestel ever built, 25 years ago. He might look old-fashioned now, but his inner values are not to be underestimated, as the kids and robots will learn pretty soon.

Watch the full Vestel 'Game' commercial in its extended version on the Unexpected website.

> "Of course, you always want to top the latest spot with the new one, and so we ended up with 'Naughty' and 'Game', where we really raised the level of action and interaction"
>
> **Alexander Kiesl** CEO, Head of VFX, Artist, Animator and Editor

Another thing is that working with a smaller crew means that everyone has to work with a lot of pressure for a longer time, as we normally have no gap in between projects or work on two projects at the same time. So we need to keep the motivation on a high level, as there is nothing worse than seeing our work as a job or something you have to do. This works quite fine as we all work on the jobs with the same passion and we really work on the ads first for ourselves, and then we see it as our duty to deliver a film for the client.

3DA: *What else are you working on right now, and how is that keeping passions alight in Stuttgart?*
SH: At the moment we're finishing the post-production on a very visual story we've never done before this way. We've created a massive sandstorm, almost acting as a character. A long R&D phase for effects like this was new to us and we've really enjoyed telling a story this way.

Last year we shot a Sprite commercial for China, which was very challenging because their overall timing and how gags 'feel' are different to ours, and we absolutely like entering virgin soil with every project because it can be done with a very fresh eye. Next month we'll be back in the Chinese market, shooting a Mirinda commercial. The bandwidth of projects and endless ways of being creative is what drives us.

3DA: *Working in such a fast-paced industry, how do you keep at the top of your game?*
AK: Individuals working at Unexpected don't see their job as a job; it is a creative and technical passion for everybody. Everything that we see in commercials, in the movies, in the world around us, brings inspiration, new ways to look at things and motivation to do it even better on the next job. Clients feel we have a passion for their images, not for their wallets, so agencies tend to come back to us because they know if we commit to a project we really care for it. This, together with a team that wants to do each job better than the last one, holds the creativity high and our standing in the industry the way we want it. If the industry's pace is too fast for us, we slow down. This is something we consider essential for good work; even if there's the opportunity to do more commercials at once, we stop and decline projects if we feel we can't dedicate 100 per cent of the team – each project needs to meet the quality we want to achieve.

3DA: *What is the motivation behind your company, and where do you see yourselves going in the future?*
AK: Even after several years in the business, where some people might consider sitting in front of a computer monitor all day exhausting, we see our job as a huge playground for creativity; on some shots that we're allowed to create we might sometimes feel like kids in a candy shop. Since creating stunning images and telling stories is a passion for us, we will definitely continue this route and hope for many great ideas that end up in amazing commercials in our business's future.

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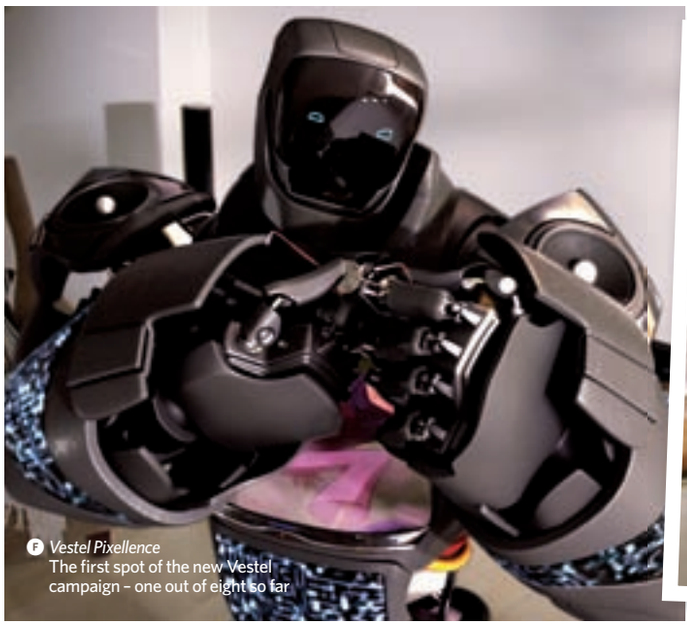
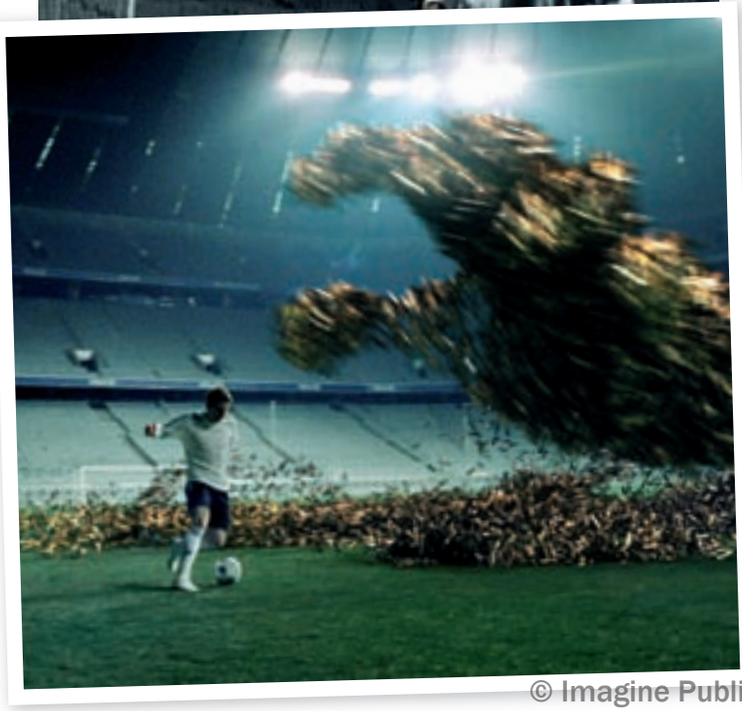


F *Vestel Pixellence*
The first spot of the new Vestel campaign – one out of eight so far

G *BiFi Campaign*
A German soccer star is challenged by a monster consisting of particle-driven realflow simulation



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» ***Alice In Wonderland***
Mia Wasikowska on the set of Tim Burton's *Alice In Wonderland*

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Get set for STEREO

In the wake of *Avatar*'s extraordinary success, stereoscopic 3D will explode into cinemas and homes on a large scale this year

A revolution in cinema has begun. Following the triumph of James Cameron's epic 3D feature film, *Avatar*, filmmakers and artists worldwide are being inspired to adopt the stereoscopic 3D (S3D) technique for their own projects.

S3D is not new technology. It is nearly 60 years on from the first major studio 3D feature, *The House Of Wax*, which used two projectors to create a double image from two running rolls of film. The result, however, caused motion sickness due to the wobbling images.

Cameron's use of S3D could have been seen as a gamble, but *Avatar*'s huge success has proved that S3D is now a profitable and viable way to tell a story. And it's the advancements in CGI that have helped S3D make the leap to the forefront of movie production. Marc Petit, Senior Vice President of Autodesk Media and Entertainment, told **3D Artist**: "Based on the success of *Avatar*, we expect to see rapid adoption of virtual production techniques, as they completely empower the actors, the director and the whole creative team."

In 2008, Autodesk first introduced stereoscopic production capabilities to its Digital Entertainment Creation software: Maya, for modelling, animation and rendering; Maya Composite, for stereo compositing; MotionBuilder, for performance capture and real-time character animation; and Lustre, its digital colour grading system. These are currently leading tools for the creation of S3D movies, popular with both standard and S3D production, and have been used in blockbusters like *Avatar*, *Beowulf*, and *Monsters vs Aliens*.

The history of stereoscopic 3D film production

1890
The stereoscopic process using two films projected side-by-side, viewed using a stereoscope, was patented

1900
A stereo camera rig with dual lenses was patented

1915
Red-and-green anaglyph test footage was first screened using a separation method that required the audience to wear tinted lens glasses

1922
The earliest-known stereoscopic 3D film was shown to a paying audience in red-and-green anaglyph format

1930s
Polarising filters were first put to use in stereoscopic 3D, resulting in improved colour as viewers wore polarised, rather than tinted, lenses

1935
The short film, *Audioscopiks*, was shot in red-and-green anaglyph format for MGM. It received an Academy Award nomination

1952–53
More than 60 stereoscopic 3D films were released in this

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> Based on the success of *Avatar*, we expect to see rapid adoption of virtual production techniques, as they completely empower the actors, the director and the whole creative team

Marc Petit, Senior Vice President of Autodesk Media and Entertainment

Also leading the S3D production revolution is Nuke, developed by Digital Domain and now in the very capable hands of The Foundry. Companies are embracing this powerful new tool in a big way: Nuke was used with its stereo manipulation toolset, Ocula, to create a phenomenal 2,500 VFX shots in stereo for *Avatar* by Weta Digital, Industrial Light & Magic and Framestore, as well as helping CafeFX with 150 VFX shots for *The Final Destination*, and a significant chunk of spacialising work on Tim Burton's *Alice in Wonderland*.

Film directors are also converting films from 2D to 3D after they've been shot. Prime Focus, which contributed to *Avatar*'s 'Holotable' displays, animated graphics, environments and set extensions, was employed to convert Louis Leterrier's *Clash of the Titans* to S3D using its View-D process in just ten weeks. When the movie hits screens in April, it will be our first real exposure to this process.

So let's take a look at some of the hottest new 3D hardware to get further insight into how affordable 3D in the home will be.

short period, a real heyday for the format

1960–1980
Further stereoscopic formats were developed in the Sixties and Seventies. *The Stewardess* became the most profitable stereoscopic 3D film in history

1980–2000
Classic S3D films were re-issued from the 1950s with the emergence of large-format IMAX 3D cinemas

2000–2008
The 3D versions of *The Polar Express, Meet the Robinsons* and *Beowulf* became box office successes, with *Beowulf* generating $11.6 million in its first weekend from 3D screenings

2009–2010
James Cameron's *Avatar* broke several box office records during its release and became the highest-grossing film of all time. It also became the first film to gross more than $2 billion

The different types of S3D

Anaglyph
Anaglyph images provide a S3D effect when viewed with two-colour glasses; most often red and cyan. Images are made up of two different colour-filtered layers, offset slightly to produce the effect of depth when viewed through the glasses. Anaglyph is the least expensive way to view S3D, but it is generally considered to be the worst quality.

Polarised projection
Polarised 3D glasses create the illusion of 3D by restricting the light reaching each eye. Two images are projected onto the same screen through different polarising filters. Polarised glasses have an advantage over shutter glasses since they offer more brightness, and can be flexible in terms of their shape and size. In cinema, IMAX theatres use two aligned projectors with polarising filters directed onto a single screen, whereas RealD technology incorporates a single projector that creates two images pointed onto one screen.

LCD shutter glasses
LCD (or active) shutter glasses can be used with a special display to create a 3D illusion. Each lens contains a liquid crystal and a polarising filter that has the ability to go dark when voltage is passed through it. Controlled by an infrared, radio frequency, DLP-Link or Bluetooth transmitter, the glasses receive a timing signal in sync with the refresh rate of the display. The latter alternately provides a different perspective for each eye, which happens so quickly that the viewer can't realise. Today, LCD (and plasma) screens with a refresh rate of 120Hz or more are making shutter glasses the dominant technology. With the advantage of superior lens quality, shutter glasses are now also making waves in cinema.

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CES 2010 unveiled the future of 3D hardware – we take a look at the hottest releases planned for this year

Key players to look out for

Toshiba has also jumped on the 3D bandwagon, announcing a series of HD 3D TVs due to be added to the Regza range, in collaboration with RealD technology. The 3D Cell Regza models expected for 2010 will come in 46- and 55-inch versions, and will be compatible with Sky's future 3D broadcasting plans. It has also been reported that they will be working together with Samsung to deliver active eyewear compatible with Toshiba's 3D-capable TVs. Marginally behind some of its rivals, Toshiba's 3D TVs are slated for release this autumn. Visit **www.regzalcdtv.com** for further information.

Philips was erring on the side of caution amid the 3D TV launch craze at CES 2010. It was thought Philips would wait on consumer demand before making a big move, watching as trends and advanced technologies take hold. It has since been reported, however, that the Philips Cinema 21:9 TV will now be given an upgrade for 3D movie viewing, which will be delivered through active shutter technology. Keep on top of product updates at **www.philips.co.uk**.

+ 3D GLASSES

Goggle up for immersive 3D experiences in the comfort of your home

Active or passive?

Active is the term used for LCD shutter glasses that work in sync with the display screen, rapidly alternating the image shown to each eye.

Passive glasses can be anaglyph or polarised, used when both left and right views are displayed together and each lens allows the intended eye to interpret the corresponding image on the screen.

RealD

RealD is currently dominating 3D glasses technology, producing both active and passive 3D eyewear. The active glasses are already used in RealD 3D equipped cinemas, and James Cameron has previously endorsed the passive disposable eyewear technology. With many firms using the technology for research and development, RealD is now licensing to many consumer electronics companies for their 3D TV compatible eyewear, and agreements with manufacturers like Sony, Samsung, Panasonic, Toshiba and JVC will soon utilise RealD's 3D content delivery format and use the active or passive technology.

To keep an eye on RealD's 3D active glasses for home entertainment, visit **www.reald.com**.

XpanD

Available Now

Price XpanD X101 3D Stereoscopic Active 3D Glasses: $119, XpanD 3D Stereoscopic Emitter with 2 Active 3D Glasses: $769, XpanD 3D Stereoscopic Kit with 5 X101 Active 3D Glasses: $1,099

Website http://xpand.tv

XpanD is the current supplier of active shutter glasses for the cinema, but is looking to expand into home entertainment. It's slated that XpanD's Bluetooth 3D glasses are to be bundled with the Vizio XVT 3D TVs in a partnership between the two companies. These active shutter glasses feature high-speed LCD lenses, and to rival other 3D glasses companies they will be available in coloured frames, and can be adapted for children.

You can already buy XpanD glasses to enjoy 3D gaming and 3D movies at home. Benefits include superior 3D performance and they will even fit over prescription glasses. In order to use the glasses right now, however, you will need to buy a package from XpanD that includes an infrared emitter – this maintains the eyewear's synchronisation with the signal.

Nvidia 3D Vision

Available Now

Price 3D Vision Bundle (3D Vision Kit and 3D Vision-Ready Samsung LCD monitor): £598, 3D Vision Kit: £199, Extra glasses for 3D Vision: $149

Website www.nvidia.com/object/3d_vision_main.html

With Nvidia 3D Vision glasses and software you can upgrade your PC for a fully immersive S3D experience. Nvidia already offers advanced technology for the home, from complete kits for 3D gaming to individual pairs of active shutter glasses. If you're new to 3D at home, there's a full bundle including a top-of-the-line PC, GeForce graphics card, 3D Vision-ready monitor and 3D Vision Kit (one pair of glasses, an emitter and the connection cables). For those who already own a PC with Windows Vista/7, or have a 3D Vision-Ready GPU or display, the bundle containing a 3D Vision-ready Samsung LCD monitor and 3D Vision Kit is ideal. And for those on the move, the gaming laptop with built-in Nvidia 3D Vision technology will be a very tempting 3D entertainment solution.

3D Vision technology is currently available with a variety of PCs, including Dell XPS models and Alienware.

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3D TVS

3D TVs are set to become an integral part of home entertainment in 2010

Samsung

Supports Active shutter technology

Available C700/C800 shipping April (C900 due out in July 2010)

Price C700 pre-order price: $3,299 (glasses sold separately)

Website www.samsung.com

Samsung is leading the way this year with the first of 2010's 3D HDTVs already available for pre-order at selected internet retailers.

The C700 series comes in 40-, 46- and 50-inch models with many features to accompany their 2D-to-3D conversion capabilities: Samsung Apps, internet, Skype and media streaming are just some of the promises for these pencil-thin LED TVs. The C800, due for April release, comes in 32- and 65-inch sizes (although be aware that the 32-inch version isn't 3D-capable); and the C900 series (46- and 50-inch) – one of the main attractions at CES 2010 – features the first on-board TV display touch-screen remote control LED. These LED sets come with an auto-conversion system to present both 3D and 2D images rendered in 3D, and with a screen refresh rate of 240Hz they're more than capable of offering viewers spectacular results with active shutter glasses. Also amongst Samsung's massive range of LCD and plasma TVs lined up for release this year is the non-LED LCD 3D-capable 200Hz C750 series (40- and 46-inch).

As with all 3D TVs planned for imminent release, glasses will be required to enjoy the fully immersive experiences offered.

LG

Supports Passive 3D technology – LG is manufacturing its own red ultra glasses, whilst designers are also stepping in with fashionable lightweight designs

Available LD360 shipping April 2010 (LE9500 is due for release in the second half of 2010)

Price Currently unavailable

Website www.lge.com

LG are doing things differently. Adopting the passive 3D technology, LG's 3D TVs will require only simple viewing glasses to enjoy 3D content, which will be considerably cheaper than powered active shutter glasses.

Scheduled for release in April 2010, the LD360 TV will come in the form of a 47-inch LCD display, which will be compatible with Sky's 3D TV channel and 3D Blu-ray discs, thus offering users the opportunity to plunge into the third dimension with movies, games, sports and other entertainment.

Unlike its competitors, LG is utilising the "passive 3D technology" with its TV set. This means that the display device, not the glasses, does all the 3D processing; yet these sets will still be fully capable of providing an immersive 3D viewing experience.

Also set to thrill consumers in the second half of 2010 will be the LE9500 3D TV. And with plans for a 60-inch 3D plasma screen that will incorporate the more expensive active shutter glasses, LG is setting itself in good stead to move either way as the standards of 3D home entertainment advance.

Sony

Supports Active shutter glasses – glasses and 3D transmitter will be sold separately, although it's reported that 3D glasses will be included with the LX900 series

Available Spring 2010

Price Currently unavailable

Website www.sony.co.uk

Sony unveiled the Bravia LX900, HX900, HX700 at CES 2010, all with LED screens and LCD technology, to deliver amazing full HD 3D cinematic experiences at home.

The LX900 was the star of CES with its packed features and availability in 40-, 52- and even 60-inch screens. With built in Wi-Fi, internet capabilities and edge-lit LED display, as well as boasting a frame rate of 200Hz, early adopters of this TV will be able to experience realistic depth and stunning 3D imagery before the end of the year with active shutter glass technology.

One step below are the HX900 and HX700 models (46-and 52-inch), which feature full HD LED screens, 200Hz frame rate, and are fully 3D capable. The only missing element on these from their superior is the integrated Wi-Fi.

Panasonic

Supports Active shutter technology

Available Spring 2010

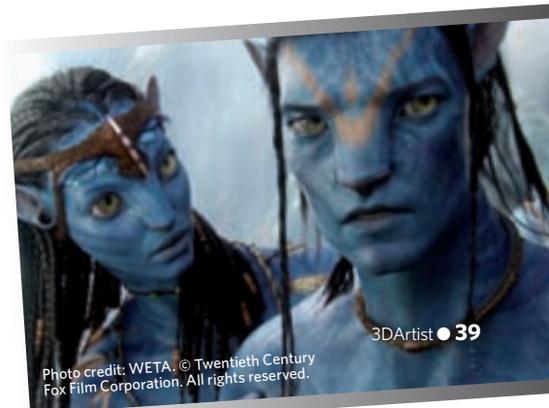
Price Currently unavailable

Website www.panasonic.com/3d

Panasonic unveiled its 3D HD VT25 series at CES, among all the other rival manufacturers battling it out to announce their advanced 3D entertainment solutions.

Panasonic's VT25 employs the same LCD shutter system as its competitors, but avoids the 2D-to-3D conversion that some other manufacturers have added to their arsenal. To view full HD 3D on this TV, viewers will need a 3D-compatible Blu-ray player with a 3D disc, or a 3D TV channel, along with their glasses. The term "Full HD 3D" used by Panasonic refers to the TVs' capabilities of preserving all 1920x1080 (1080p) pixels for each eye, when viewing 3D content through the shutter technology system.

Unlike many of its rivals, Panasonic will be offering the required 3D glasses with its 3D TV – due for release this spring, among the first 3D flat panels TVs available.



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» *Despicable*
Gru (voiced by Steve Carell) tries to break into Vector's fortress in Universal Pictures and Illumination Entertainment's inaugural 3D CGI feature, *Despicable Me*

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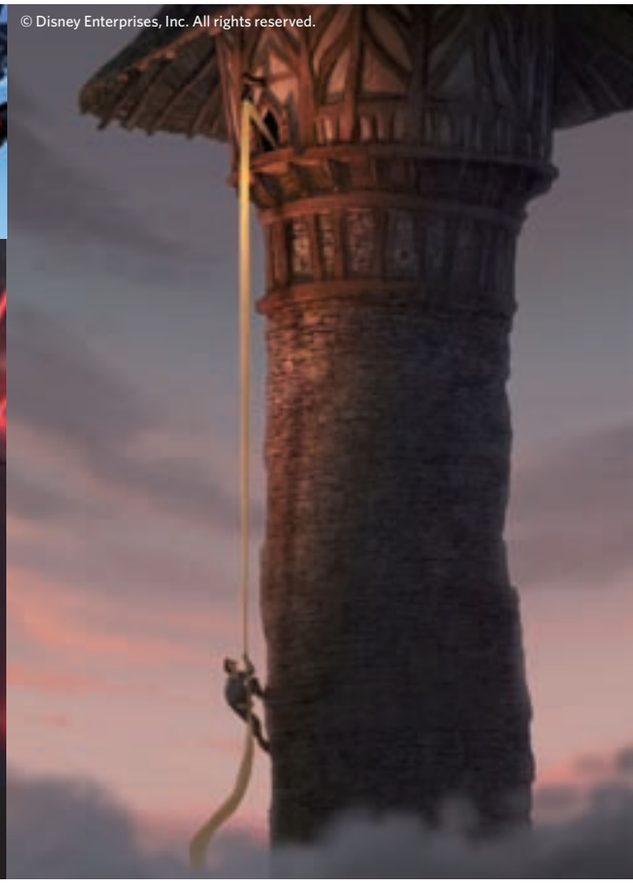
» *Rapunzel*
We'll be transported to a CG fantasy world in *Rapunzel* when it hits screens this November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+ THE FUTURE *IS* 3D

Stereoscopic 3D is set to burst into all our lives, and you may not even need glasses

We will have a feast of S3D movies for our eyes this year, both at cinemas and in our homes. With 3D Blu-ray titles ready to go from the middle of the year, and the majority of S3D movies planned for cinema release towards the second half of 2010, there will be objects bursting out of screens all around the world.

First on Blu-ray 3D will be *Cloudy With a Chance of Meatballs*, out this summer from Sony Pictures Home Entertainment. This will be the first title in the new 3D format, coinciding with the release of Sony's Bravia LCD 3D TVs and compatible Blu-ray players also available from summer 2010. More titles are planned for later in the year, including *Monsters vs Aliens*. *Avatar* will be available on disc in three versions: a 2D one, which is anticipated for June, with a special edition and 3D Blu-ray DVD coming later. With *Avatar*'s success in 3D, will audiences be reluctant to settle for the 2D version?

In the UK this year, Sky is launching 3D TV, following a record number of customers choosing Sky+HD – more than double the number just one year ago. The 3D TV channel will host movies, entertainment and sport, all being broadcast through Sky's existing HD infrastructure and the current Sky+HD set-top boxes. Of course, customers will need a 3D-ready TV and a pair of 3D glasses to enjoy the broadcasts, but these will be in no short supply as 2010 rolls on.

"3D is a genuinely 'seeing is believing' experience, making TV come to life as never before," Brian Sullivan, Managing Director of Sky's Customer Group has reportedly said.

Not only will homes be flooded with immersive 3D, but pubs will also be hit by the craze as the soccer World Cup kicks off from South Africa in June. It's expected that Sky will beam the World Cup in 3D as a trial for 3D TV, with some audiences already having experienced the technology in their local when the Sky Sports HD channel fed stereoscopic footage to football fans – all wearing 3D glasses.

But will vast audiences take to the glasses required by today's 3D technology? The not-too-distant future certainly looks to be goggle-free, as we look towards autostereoscopic technology advancements. Autostereoscopic technology has been in the manufacturing process for a few years, with companies such as MasterImage, Philips, Sharp and Mitsubishi all demonstrating what can be achieved sans glasses.

Several technologies for autostereoscopic 3D displays exist already. Philips's WOWvx technology has experimented with minute lenses over each of the millions of coloured sub-pixels that make up the display screen – either LCD or plasma. These lenses cause each sub-pixel to project light at a different angle, creating a fan effect in front of the screen, with viewers able to move around without too much loss of effect.

> "Things are moving quickly now, and one thing we can be can be assured of this year, if nothing else, is that we are set for a great 3D adventure, both at cinema and in our homes"

This kind of technology will open up the market even further, with venues such as casinos able to use the mesmerising effects of S3D to reap monetary rewards. And who wouldn't want to watch 3D without being restricted by glasses? To really get 3D to the widest audiences, autostereoscopic is surely a key to such success.

Things are moving quickly now, and one thing we can be can be assured of this year, if nothing else, is that we are set for a great 3D adventure, both at cinema and in our homes.

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» *Unexpected MiTo commercial*
"The approach to create the stereoscopic 3D effect based on a flat 2D image was to create each object in each shot as 3D wireframe and then map the texture (the 2D image) onto the 3D shape"

» *Wayne Robson – Alien Head images*
"This model was done as a favour for Zap Anderson who needed something for an FXPHD class he was giving"

What's in it for the CG artist?

Much like the 3D hardware advancements, software is following suit, developing at great speeds. Tools that are currently standard in the S3D CGI industry, such as Nuke and Ocula and Autodesk software, will need to keep up with improvements to stay top of the game.

"Although Nuke is becoming the de facto standard for desktop effects compositing, we'd be foolish to be complacent about it," Simon Robinson, Chief Scientist at The Foundry, tells us. "So Nuke has an extremely dense roadmap for this year, but we're still arguing the details internally... For S3D, there are definitely a lot of workflow tasks coming up."

Likewise, Autodesk is keeping its sights on the future as it concentrates on improving software over the next few years. Plans include building tools for pre-visualisation, virtual cinematography and stereoscopy. Marc Petit, Senior Vice President of Autodesk Media and Entertainment, told 3D Artist: "Our goal is to make software that best carries a vision from initial concept to final delivery, by empowering creative visionaries and entire production teams with better, faster tools that communicate well together."

For artists working at home, Autodesk recommends the Entertainment Creation Suite. It contains all the necessary tools for a modern pipeline incorporating sculpting, character animation, performance capture and stereoscopic technologies. There are a number of tutorials on the AREA community site (http://area.autodesk.com) to get artists started in stereo projects.

Those individuals already working with S3D report the same trend as what can be seen in the industry: it's all in the compositing. Compositing artist Selim Sykut tells us: "The key is to find workflow that allows us to create the composition for both eyes simultaneously, or to re-create the composition for the second eye in an easy way." Nuke is perfect for this task, with its built in stereo workflow.

The most affordable stereo preview system is now rather dated anaglyph, which can cause headaches for artists when reviewing their shots in this format. With all the hardware announcements for 2010, we should be seeing changes in artists' studios to coincide with the latest technological advancements.

"S3D is on everyone's minds when we visit clients today, whether they currently have projects on or not," says Simon Robinson at The Foundry. "It's a big change from a few years ago." Artists and studios are showing interest in S3D, even if they haven't got any stereo work lined up. Many are being asked by their clients to quote on stereo work, or demonstrate their S3D capabilities.

S3D films are queuing up for release this year

April
Clash of the Titans (Warner Bros)
Alpha and Omega (Lionsgate)

May
Shrek Forever After (Dreamworks)

June
Toy Story 3 (Disney)

July
Despicable Me (Universal)
Cats & Dogs: The Revenge of Kitty Galore (Warner)

August
Step Up 3-D (Disney)
Piranha 3-D (Dimension Films)

September
Guardians of Ga'Hoole (Warner)

October
Around the World in 50 Years (nWave Pictures)
Black Friday 3D (Blood Worx Films)
Saw VII (Lionsgate)
The Legend of Spyro (Universal Animation Studios)

November
Megamind (Dreamworks Animation)
Harry Potter and the Deathly Hallows: Part 1 (Warner Bros)
Rapunzel (Disney/Pixar)

December
Tron 3D (Disney)
Yogi Bear (Warner Bros)

Also due for release this year:
Cereal Heroes (Fable Works LLC)

"Having gone to Siggraph and NAB and seen the next-generation stereo televisions that will be available in the coming year and enjoying the films in the cinema, it's an incredibly exciting time right now and we've seen the technology advance in exponential ways," Chris Bond, president of View-D tells us. "There's a massive future for S3D and we're excited to be a part of it."

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The pre-vis and VFX team at Painting Practice explain how they helped create the latest version of the classic John Wyndham story

Behind The Day of the Triffids

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A

Company Painting Practice
Founded 2008
Company website www.paintingpractice.com
Country UK
Software used CINEMA 4D, Photoshop
Expertise Pre-vis, matte painting, modelling, animation
Client list MGM, Columbia Pictures, Touchstone Pictures, Passion Pictures, Nice Shirt Films, Gecko Productions, BBDO

"We were very aware of budgetary limitations but one thing we were very keen to maintain was a filmic quality to the production"

Dan May is the VFX Art Director for Painting Practice

John Wyndham's 1951 novel, *the Day of the Triffids* has been turned into a film, comic, radio series, TV series and now, a two-part BBC TV programme that was transmitted in December 2009. Wyndham incorporated a number of themes in his work that still have relevance today: bio-engineering by a totalitarian state, the collapse of civilisation, human greed, and male and female gender roles. The book drew inspiration from HG Wells's *The War of the Worlds* as well. For this latest version to hit the small screen, pre-vis and concept studio Painting Practice took the lead role in handling the entire vision of the show, using CINEMA 4D as its main pipeline, through concept design, production design, pre-vis and finally, digital matte painting.

Painting Practice became involved with *The Day of the Triffids* from its very early stages. Initially, the producers of the show approached one of the studio's co-founders, Production Designer Joel Collins. The task was to begin considering the actual design

A *An early scene from the programme as London goes to pieces when most of the population are stricken blind*

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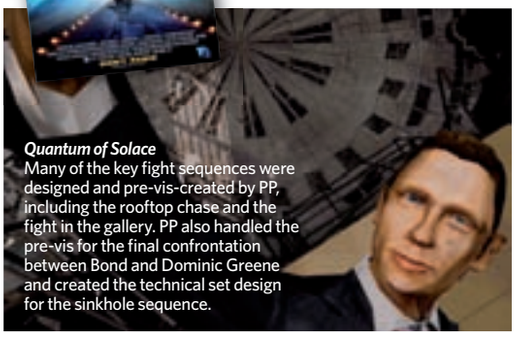
Angels and Demons
The team tackled the pre-vis for the key exploding antimatter bomb sequence in *Angels and Demons*.

Recognise these?

Painting Practice has also worked on a number of big-budget films, either in pre-vis or key sequences. Here is a potted guide to what that work entailed...

The Hitchhiker's Guide to the Galaxy
For the first time the pre-vis team at PP were able to explore large-scale art department ideas in innovative and unusual ways. They worked continuously through both preparation and the actual shoot, creating accurate digital renders of sets and spaceships.



Quantum of Solace
Many of the key fight sequences were designed and pre-vis-created by PP, including the rooftop chase and the fight in the gallery. PP also handled the pre-vis for the final confrontation between Bond and Dominic Greene and created the technical set design for the sinkhole sequence.

Painting Practice has also worked on artwork for the new Gorillaz album, *Plastic Beach*; more monkey mayhem with the latest PG Tips commercials; produced designs for Johnnie Walker and Bacardi; and created concept design work for Adidas.

B *It's the light show in the sky that sends most people blind and allows the Triffids to go on the rampage*

C *Building dummy Triffids so that the actors would have something to relate to*

and look of the Triffid. During two months of development, the in-house team at Painting Practice helped establish the Triffid's complete biology, life cycle and movement.

Pre-visualisation for *The Day of the Triffids* was handled entirely by Painting Practice, again using CINEMA 4D as its main tool. "CINEMA 4D is our main pipeline. We all love it, and the speed with which we can put a scene together and get it rendered makes it a no-brainer," said Senior Pre-Vis Artist Justin Atkinson.

CINEMA 4D's fast turnaround often meant that the team were even able to embellish some of the shots with motion blur – usually considered a no-go when it comes to pre-vis. In the early stages, before handling the script, the team were asked to consider the physical behaviour of the Triffid – a tricky job. How would the plant move and kill? Added to this, the root system itself was incredibly complicated. The resulting Triffid rig was relatively detailed, providing the necessary control of the roots and main leaves, plus the stem and head.

"After some testing we came up with a pretty cool result, certainly good enough to convince the producers of where this plant was heading and how it would get there," said Joel.

However, it soon became apparent that this detailed Triffid rig was going to be too heavy for the final pre-vis once the scenes were filled with large numbers of Triffids. So the answer was to build a series of low-poly Triffid rigs that allowed certain movement suitable for their placement in the shot. In addition, a set of hero roots were created in order to handle detailed interaction with the human characters and the physical world around them. Using constraints, the animators were also able to build longer, more complex root rigs for the more involved shots.

One other vital time saver, which CINEMA 4D solved, was shot numbering and 'burn-ins.' By combining the render HUD attributes with their own custom 'Doodle' image, each shot gathered its own burn-in info at render time, giving each clip all the information needed by the VFX team and the editor. To help the process, Head of 3D at Painting Practice, Krzysztof Niemiec, built a complete set of custom, real-world camera rigs that automatically imported the lens, scene, shot version and also the artist's name into the HUD.

Unique to this process was the fact that Painting Practice had a key involvement in all parts of the production pipeline and was on board even before the production was given the full go-ahead. Producer Stephen Smallwood and his team were eager to have the man-eating monster plant nailed before production got underway at Shepperton Studios. Having designed the Triffid, Painting Practice was very aware of its complications and limitations.

VFX Art Director Dan May worked very closely with the production's VFX Supervisor, Tom Turnbull, to make sure that any in-camera Triffid action would stand up and feel real. "We were very aware of budgetary limitations, but one thing we were very keen to maintain was a filmic

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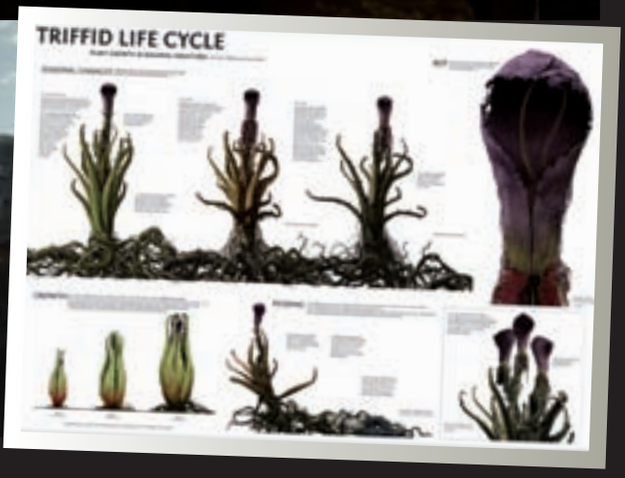
> Because we had a small budget, we had to recycle everything! We made farm Triffids, lots of leaves, hero Triffid roots and a Triffid head for the dissection scene

D A concept painting for the Triffid factory



quality to the production," said Dan. "We put together a small crew of Triffid makers and assembled the 'rooty bits'.

"Because we had a small budget, we had to recycle everything! We made farm Triffids, lots of leaves, hero Triffid roots and a Triffid head for the dissection scene. We also had an arsenal of slime, twigs, blood and earth to dress sets which had been attacked by Triffids. We had several large posts of varying heights to give the actors something to reference during key Triffid sequences."

Special 'rooty bits' were used to grab and interact with the actors, although Painting Practice soon found it best to leave the actors clean of any prosthetics and instead use fishing line and wire to give them something to fight against or to constrict their clothing. This gave the VFX team something to interact with for the digital roots. Having done all the pre-vis, Painting Practice was able to break down all the key Triffid shots and work out which bits of Triffid kit would work best for each shot.

Once shooting had begun, the next role for the creative team was to begin designing the VFX shots for the entire film. Switching roles from pre-vis artist to matte painter, Justin set about designing the matte shots together with the in-house matte painting team.

"Anything with a matte painting in it needed to be designed – quickly!" said Justin. "Most of the time we would have half a day, or a full day if we were lucky, and there were lots of shots to get through. Still, it was a lot of fun."

The studio was awarded six of the final shots for the film, most of which involved the 'Triffid Research Facility,' seen in the opening sequence and again after the Triffids had trashed the place. The facility had to be created entirely in 3D; again, Cinema 4D was called in to do the job, both for texturing and lighting as well as for the final projection. Once the shots had been tracked, the model was then placed into the 'real world' space and rendered out so that the painting could be worked up in Photoshop.

Finally, in order to make the shot happen, the tree line needed to be extracted from the plate and re-projected back onto cards, leaving just the bridge and the road as live elements. Each part of the painting was rendered out from CINEMA 4D as a separate pass for compositing in Shake using the object buffer for all the matte passes.

Another set of paintings involved the facility entrance, again covering the passage of time from the opening sequence to the destruction of the facility. A detailed model of the 'Orchard' building was required because reference photography from the actual location wouldn't work. For these shots, the paintings were projected onto simple cards within Nuke, where additional lens distortion and focus pull were added.

Summing up CINEMA 4D's contribution to the project, Dan said, "CINEMA 4D provided a solid backbone throughout the entire pre-production and post-production process."

***The Day of the Triffids* 2009 is now available on DVD and Blu-ray.**

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Software used in this piece

ZBrush | Maya | Photoshop

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Chris Nichols

Personal portfolio site www.porkpiesamurai.com
Country Canada
Hardware used Intel Core i7 920, 6GB RAM
Expertise Chris specialises in characters and creatures

Modelling, Sculpting, Texturing

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Step by step: Create a Lovecraft legend

Cthulhu 2009

"I wanted to create something squid-inspired because I like the texture and to play with scale and colours to make a dynamic image"

Chris Nichols specialises in modelling characters and creatures

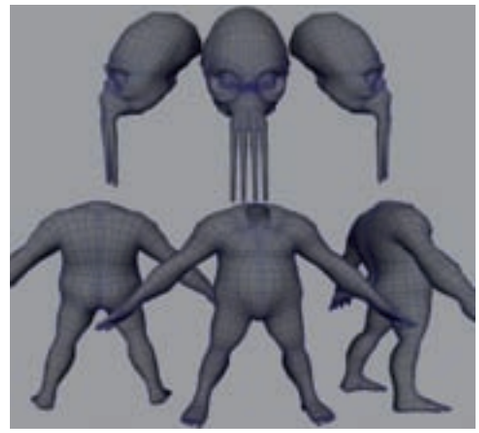
In November of 2009 I was asked by Pixologic to present at the Vancouver ZBrush User Event and had some ideas to make my own version of HP Lovecraft's Cthulhu. I had done a sketch a while ago and dug it up to consider modelling it. I wanted to show off some of the strengths of the latest version of ZBrush, namely a few of the brushes and tools and the amount of polygons it can handle. I had about three weeks in all to model/texture and render the scene ready for the event and wanted to try out some things I hadn't indulged in before, such as ZBrush's Polypaint for texturing and Decimation Master for exporting hi-res meshes that have been modified to retain their high level of detail while being under a million polygons. All in all I was presented with some interesting challenges, but enjoyed the project thoroughly.

Concepts

Inspiration behind the scene

01 **To get a good** idea of the design possibilities I collected as much reference material as possible, firstly of artists' interpretations of Cthulhu, as I wanted to see what had been done already. Next I collected pictures of squid and various other cephalopods to give me some ideas for shapes and textures.

02 **Starting with simple** sketches, my version of Cthulhu begins to take shape until I'm happy with the overall look of the design. I'm not too concerned about the colours or surface textures as this point, but just want a good idea of what I'm about to model.



03 **I started out** by quickly modelling a head and body that I was going to use in ZBrush. I could have used a generic base mesh, but wanted to make sure I had edge loops in the right places so I could get the necessary details into the face.

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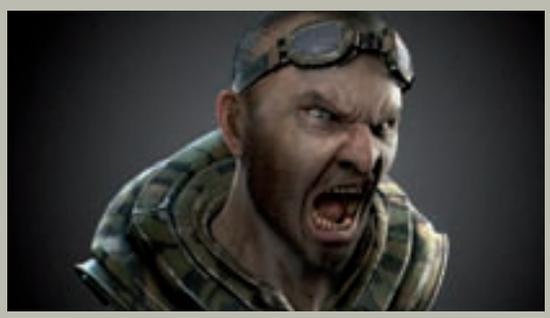
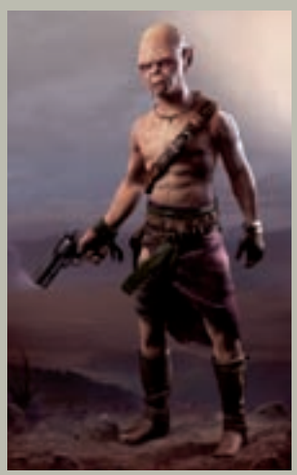
Artist Showcase

Chris Nichols

Growing up in Australia, I began 3D back in 2004 after completing graphic design school, and worked on short films and TV shows locally. In 2007 I moved to Vancouver and have worked as a modeller/texture artist at such studios as Bardel Entertainment, Spin VFX and CIS Vancouver.



The Merc **Maya, ZBrush, Photoshop, mental ray (2009)**
I made this as a model/texture study and to test out Shave and a Haircut, a hair plug-in for Maya. I modelled all the geo out in Maya first, UV'd the meshes and sculpted the face expression and the skin details in ZBrush. Rendered in mental ray.



Gunslinger **Maya , ZBrush , Photoshop, mental ray (2008)**
This is the first character I modelled. It was really used as a learning project, that began back in 2006, to understand the modelling and texturing process. I kept going back and redoing parts of him until I finally finished it off in 2008.

Rock Lizard **Maya, ZBrush, Photoshop, mental ray (2009)**
I made this as a texturing exercise inspired by photographs of Galapagos iguanas. I spent a long time painstakingly laying out each scale much of the time, but learned a lot about texturing and setting up shaders.

Creaturing the creature

Cthulhu starts to take shape

04 **Exporting the geometry** to ZBrush to start the sculpting, I got the head to a point where I felt there was a sense of completeness without getting into too much detail with the face. Next I imported the body base mesh and started fleshing out the main forms just I like did with head, keeping everything symmetrical.

05 **When I had** a complete mesh I exported the model back to Maya and rebuilt the animation mesh over the top. This can take a bit of time to refine the edge loops, but in case I wanted to animate it later I went ahead and retopologised the mesh then UV'd it.

06 **I exported the** new base mesh into ZBrush and accepted the option to transfer the details from the old ZBrush model to the new animation mesh. So I then had my UV'd animation mesh with all the levels of detail from my ZTool transferred across so I could continue refining the model.

07 **Using Transpose** in ZBrush, I started to manipulate the model into a menacing pose and commenced sculpting all the fine details into the skin surface. I sculpted a lot of the rough bump details using the clay brush and went over with alphas for the finer detail.

08 **Beginning with** Polypaint in ZBrush, I used different alphas to build up my colours and surface texture, referring back to my various references of cephalopods. Starting with the head, I worked out the patterns and colours that would cover Cthulhu. Screenshots, colour-corrected in Photoshop, helped decide the scheme.

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Refining the detail

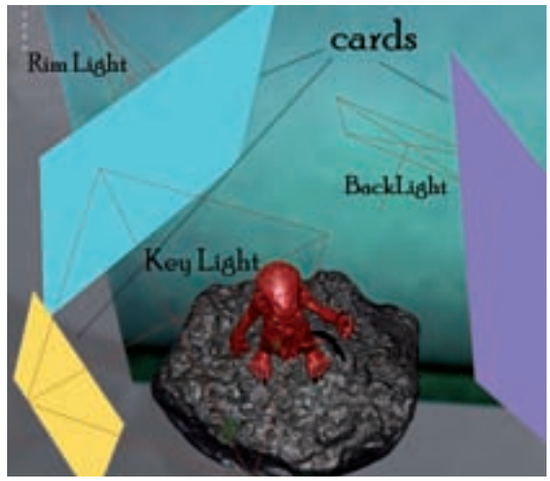
Making the monster come alive

09 Once the creature was painted to a certain level of detail, I started using ZAppLink to export screenshots into Photoshop. Using photos and different brushes, I refined the surface, giving it a higher res of detail using the Polypaint work as a guide. ZAppLink exported the changes back to ZBrush.

10 After the creature was complete, I began texturing the eyes using the same technique as before. The fingers, toenails and rocks were mostly painted with Polypaint and ZAppLink, and the texture maps were refined further in Photoshop with numerous rock and stone overlays.

2 hours render time Resolution: 2,000 x 2,554

11 Now that the creature was modelled and textured, it was time to set up a render in Maya. I exported out the posed model, base and anything else at a high resolution using ZBrush's plug-in, Decimation Master. This condenses the creature mesh from 17 million polygons to 500k for export.



12 In Maya I set up the scene, imported the decimated meshes and creating shaders for all the geo. I used a simple rig of about three area lights and one spotlight, an IBL node with an HDRI mapped to it, and three colour cards for reflections.

UV map details

Cthulhu UVs were all in one map for this project as I wanted to do 80% of the painting inside ZBrush. To get crisp enough details I recommend blocking out the main colours with Polypaint, but this leaves you with a fairly low-res texture. I set my document size to 4480x3360 and zoomed right into the area I wanted to refine. Clicking ZAppLink will export the screenshot to Photoshop where it can be edited at high res and, once saved, project those details onto the mesh. This way you're only limited in detail to whatever your UV map is set up as.

13 The skin material was set up using mental ray's SSS shader and the colour map was converted into multiple skin layers such as epidermal, subdermal and overall, which were used to create a translucent slimy skin. I then rendered out six passes, diffuse, reflection and multiple speculars and then comped them all together using Photoshop.

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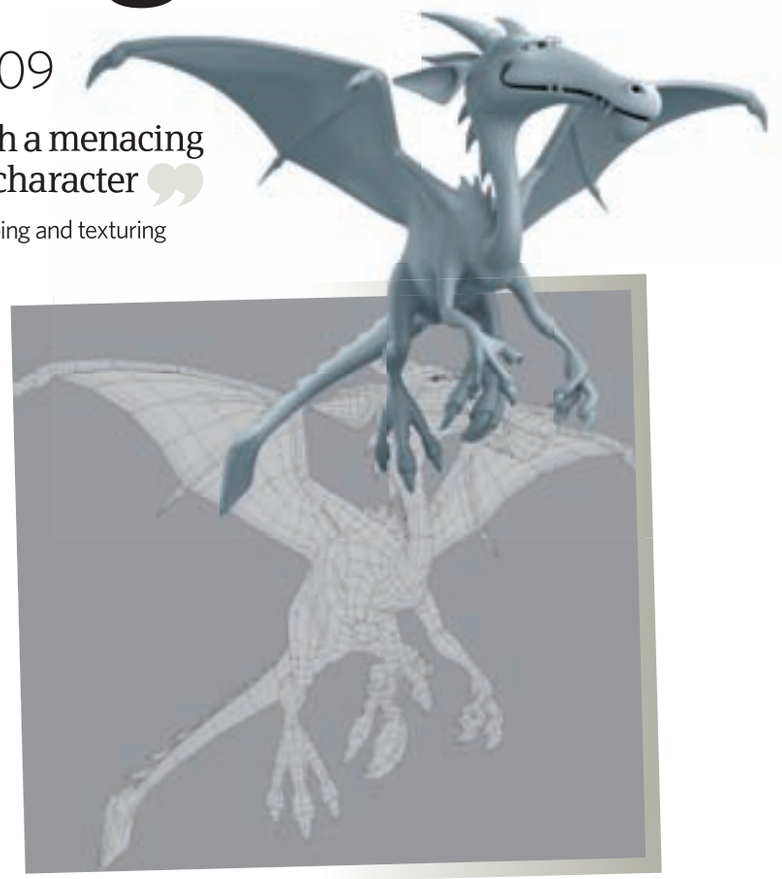
Step by step: Create a friendly dragon

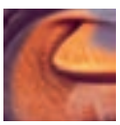
The Final Warning 2009



> Blending attitude and kindness with a menacing and powerful appearance in a stylised character

Carlos Ortega Elizalde specialises in 3D modelling, UV mapping and texturing

This tutorial focuses in the creation of a stylised dragon character. I like to retain the personality of the character if I'm happy with the original concept in the first place and I always try to emphasise clean modelling, although good skills like texturing, UV mapping, and a basic colour and lighting theory are very helpful if not essential to achieve a solid result. One of the main difficulties in the process was the rendering; it was intended to be in mental ray directly in Maya, but after many poor results I decided to compose the final image in Photoshop from different ZBrush renders. This was also a good choice, since I was able to retain full detail from the sculpting, avoiding the use of displacement maps. The original purpose of the image was just creating a plain model for an online forum challenge, but after more dedication it led me to the creation of a more solid character with some untold story behind the final piece.

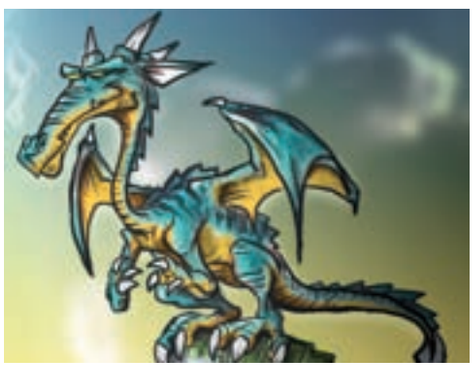


Concepts

Inspiration behind the scene

01 I always start my personal projects with some quick sketches (in digital or on paper), to block overall proportions of characters in this case. I try different complexions, attitudes, expressions and poses. I decided in this case to go for a roguish-looking dragon, menacing but appealing in some way.

02 My original idea was to put the dragon at a cliff's edge, about to commit some kind of prank, maybe steal some sheep or burn an old village just for fun. I focused more on the facial expression to re-create the dragon's intention, along with his hands and legs in a position that could suggest he was planning something.



03 I love to work and experiment with different colour palettes, even more when I'm working with fantasy or stylised scenes. I often try to avoid the colours I frequently expect in a determined situation (a green dragon, for example) when sometimes it isn't the best solution; other times it leads to a very unique result even nowadays, when it's pretty impossible to create something 100% original..

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On the Disc

Save yourself some modelling time by using the posed dragon character in OBJ with UVs created here.

the_final_warning.obj

Modelling, Sculpting

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Carlos Ortega Elizalde

3DArtistonline
Username: carlosortega3d

Personal portfolio site http://stroggtank.cgsociety.org

Country Mexico

Hardware used Intel Core 2 Duo, 2GB RAM

Expertise Carlos specialises in 3D modelling, UV mapping and texturing

Software used in this piece

Maya | ZBrush | Photoshop | UVLayout | CrazyBump

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Artist Showcase

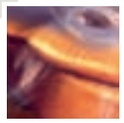
Carlos Ortega Elizalde

I'm a graphic designer from Guanajuato, Mexico. I started working with 3D about 6 years ago, using Carrara Studio and now Maya for the last two years. I currently work in the media department in the Guanajuato University, Mexico, doing motion graphics and 3D art. I'm also a freelance 3D modeller, although 3D is almost a full-time hobby.

Fulgencius The Wise **Maya, Photoshop, mental ray, UVLayout (2009)**
Fulgencius, also known as 'The Wise', is actually not that wise – he is a 200-year-old wizard with a poor memory.

The Zcuintli aka 'Yellow Dog' **Carrara 5 Pro, Maya, Photoshop (2008)**
Autonomous racing vehicles modified to watch the city limits and the military facility's boundaries. They were also modified to carry a human pilot, but their free will caused many accidents. The machines still do their job by themselves. Workers only ride them for maintenance purposes.

Back To The Past **Maya, mental ray, Photoshop (2009)**
Started as a speed modeling exercise as an homage to one of my favourite Sci-Fi machines, but after adding the rest of the details I ended up with this stylized version of the famous time machine.

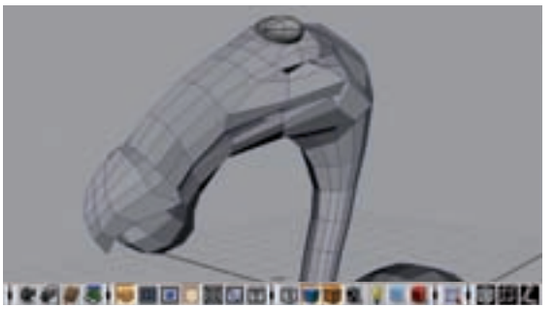


Modelling the dragon

Working on the creature's body shape

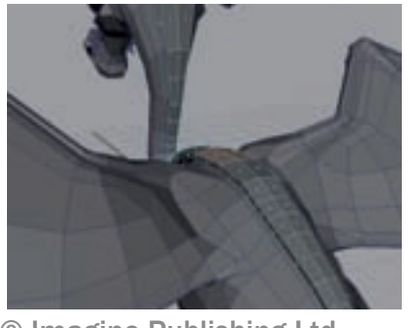
04 **When it comes** to personal 3D work, I rarely create reference images; I prefer to use the original concept or even nothing at all, since I already know what I want him to look like in 3D space. I often start from a 2x2x2 polygon cube and from the nose area, moving the existing vertices to match the concept I have.

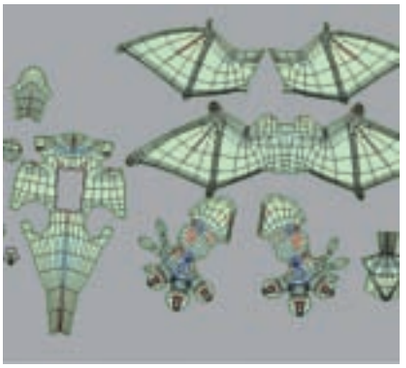
05 **Once I've blocked** the main shapes, I start to add and tweak more geometry using the following Maya tools: InsertEdgeLoop, SplitPolygon, Extrude, SlideEdge and MoveComponent, among others. I kept using the Extrude tool over the neck edges, moving the resulting vertices over the torso, and then extruding and tweaking again until the tip of the tail.



06 **Right from the** planning stage, the character was never intended for animation. So, to avoid the use of BlendShapes or a face rig to achieve the desired expression later at the posing stage, I modelled the face as I wanted in the final image directly as I was moving forward.

07 **Hands, wings and** legs were made the same way, starting from a six-sided cylinder and then sewn to the main mesh. Dorsal spikes were created by extracting the matching faces and then extruded outwards. Fangs and horns were modelled from a cube.





08 **Once the model** was finished, I did the UV unfolding in UVLayout. In this case I tried to keep as few shells as possible. The whole process didn't take much time; even with tricky parts such as the armpits, the distortion was pretty low. Final touches like the shells layout and UV mirroring were made back in Maya´s UV editor.

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Lighting and colour

Getting the right look and feel

4 hours render time
Resolution: 3,000 x 4,000

09 I imported the model into ZBrush for detailing. Although the topology wasn´t that even, the result was satisfying. I only used the Standard brush to add wrinkles and folds. Most of the scales were created using custom alphas, keeping them exaggerated in some parts and subtle in key zones like the face. Once done, I exported a 4k displacement map.

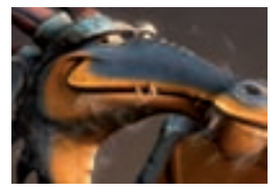
Normal mapping

Due to some hardware limitations, I wasn't able to render a proper normal map from ZBrush, so I used CrazyBump to quickly generate one from the displacement map. I extracted the blue channel to simulate a cavity map over my main texture and enhance the contrast of the scales and wrinkles. As for the lighting, the fact I rendered three different light sources in ZBrush helped in the composition to simulate a key, rim and fill light. The final touch was to correct colour with Curves to gain a warm tone, levelling up the blue in the shadows and an orange/yellow in midtones.

10 Using an UV template from Maya as a guide, I painted the base colours in Photoshop, using a basic round brush to create different tones while staying in my chosen palette. The displacement map helps in many ways to shade specific areas in the body. The stripes, eyes and extra scales are hand-painted.

11 I posed the character inside Maya to match my sketch, but the dragon looked kind of weak, so I decided to pose him into a gallant flying position. The result was this roguish dragon leaving his crime scene with a satisfied attitude. The posed OBJ was imported as a 3D layer into ZBrush at the lowest level.

12 Back in ZBrush I exported several renders from ZBrush using different MatCaps, various light sources, a ZDepth and a flat colour pass, previously setting my canvas to a pretty high resolution. All those renders gave me full control over the final image composition later in Photoshop.



13 In Photoshop, I composited the ZBrush renders, masking the proper areas of the different layers to gain the desired volume. I wanted a warm atmosphere ,but also a painting-like mood. I painted extra shadows and put smoke from stock brushes. Finally I added subtle motion blur in the wings and depth of field in the completed scene.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Matt Olson

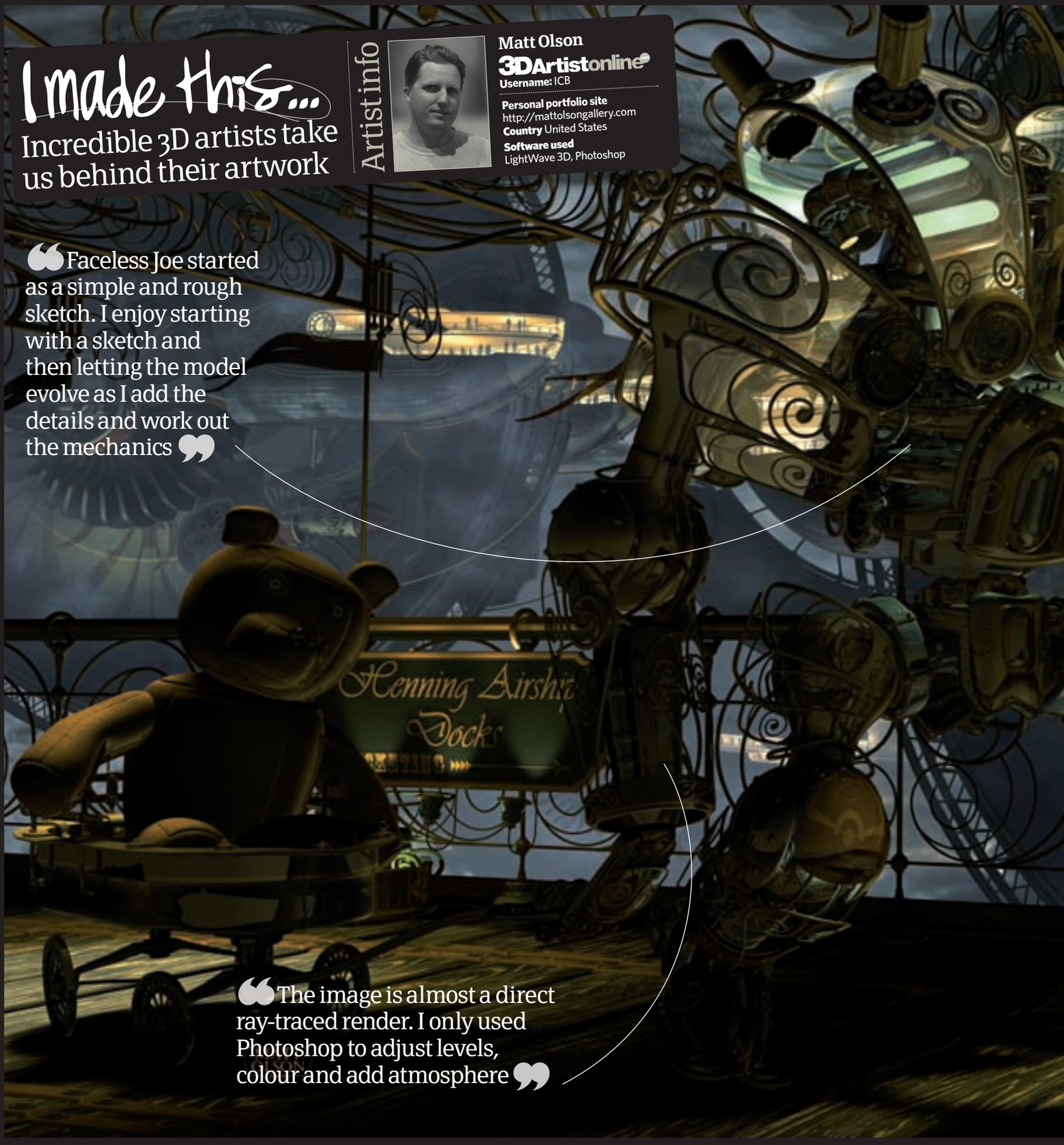
3DArtistonline

Username: ICB

Personal portfolio site
http://mattolsongallery.com

Country United States

Software used
LightWave 3D, Photoshop



"Faceless Joe started as a simple and rough sketch. I enjoy starting with a sketch and then letting the model evolve as I add the details and work out the mechanics"

"The image is almost a direct ray-traced render. I only used Photoshop to adjust levels, colour and add atmosphere"

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"I wanted the scene to be set at dusk so I could focus on illuminating the airships from within to help add depth along with being able to show off Faceless Joe's inner lighting"

"I laboured over the composition because I wanted to showcase Faceless Joe, but I wanted to make sure the airships were a prominent piece of the backdrop without dominating the image"

Faceless Joe & Penny 2009

'Faceless Joe & Penny' depicts the faithful robot Faceless Joe setting out on a journey to find Penny the teddy bear's long-lost owner, a little girl named Amber who he was charged with protecting.

Software used in this piece

LightWave 3D

Photoshop

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> This picture represents a dreamlike, yet believable environment, with the purpose of leading the viewer to the world of fairy tales

Drea Horvath Freelance digital environment designer

Creating a magical forest lake Elven Lake 2009

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Drea Horvath

3DArtistonline
Username: Drea

Personal portfolio site http://dreahorvath.darkfolio.com/

Country Hungary

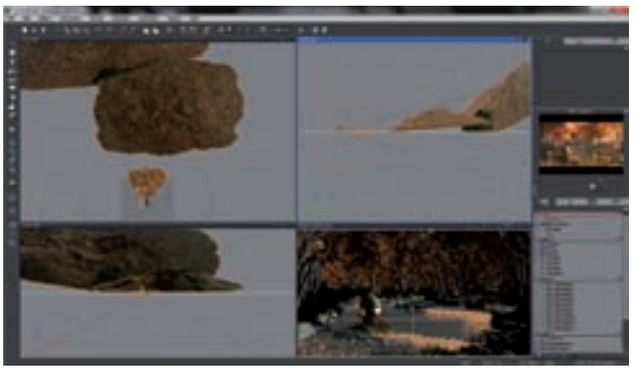
Hardware used Intel Core 2 Quad 9650, 8GB RAM

Expertise Drea specialises in creating mostly large-scale, detailed, natural landscapes in e-on Software's Vue, with particular strength in atmosphere and lighting

My inspiration for making this scene came from viewing some wonderful oil paintings, and one in particular caught my eye. It depicted a lovely forest lake in the colours of fall (autumn), and although it was an illustration of a real place, it had an ethereal mood. Since I love tweaking Vue's atmosphere engine, I decided to make a colourful, scenic, dreamlike, yet believable environment, which leads the viewer to the world of fairy tales. This is how *Elven Lake* was born.

In this tutorial I will show you the step-by-step process of how to go about making this scene. You will get an insight into the way that I set the basic composition, use Vue's procedural materials, create the ecosystem, and set the most important parts of the scene: the atmosphere and the lighting, using Global Radiosity.

I will cover my render settings, I'll reveal some tips and tricks for decreasing your render time, and finally I will show you a few steps for how to make your ethereal render look even more magical in Photoshop.



Concept

The idea was to create a lake surrounded by luscious woods. With the placement of a suitable building it became a fantasy environment.

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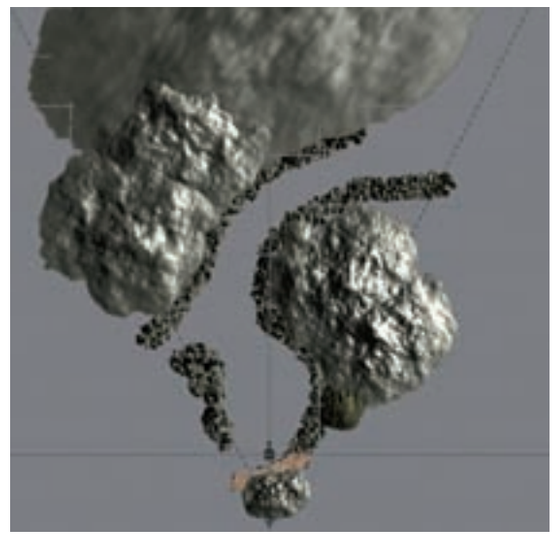
Ⓐ The very beginning – a main camera view of terrains placed to form the basic shape of the lake

01 The basic concept

Unlike many 3D artists, I never make a sketch before starting to compose a scene. Instead, I just place the terrains to the position I imagined, and the rest of the ideas come while working on the concept. Since I wanted to have a lake in this scene, I started my work by adding Vue's default MetaWater, and I deleted the Foam layer. Following that, I placed terrains to the middle-ground and background; they gave the basic shape of the lake. Finally, I placed a smaller terrain to the foreground, right below the camera Ⓐ.

02 Adding rocks to the lakeside

If I want to make a lake or a river in Vue, I often use EcoSystem Painter to paint rocks or plants to the ground to create the final shape of the lake or river. I apply this technique more often than painting a terrain map in Photoshop then importing it into Vue, because I find it easier, I save time and since I can paint and erase instances as I want, I have more control over the shape. So I turned the ground to an EcoSystem, added rock, deselected Dynamic Population and started painting rocks along the side of the terrains Ⓑ.



Ⓑ A top view showing the lake formed by the terrains and the painted rocks

03 Materials – ground and water

After making the basic composition, I continued my work with setting the materials. First, I modified the water material; in the Highlights tab I set Highlight global intensity to 69%, and Highlight global size to 76%. Then in the Transparency tab, I set Turn reflective with angle to 75%. These steps made the water surface more shiny and reflective; more realistic.

For the ground I picked a soil material. I also changed the EcoSystem rocks' material for a more realistic one I've purchased from Cornucopia3D Ⓒ.

Ⓒ A main camera view showing progress after the changes described in Step 3

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Problems and solutions

The EcoSystem Painter had a bigger role in shaping the lake, because, as I've mentioned in Step 2, I find it easier and more controllable to paint the lakeside than to use a large terrain and spend more time in Photoshop and in the terrain editor. I knew exactly where I wanted to have the edge of the lake, so I painted rocks right there, then adjusted the smaller terrains next to the rocks. This is a great and easily applicable solution to create lakes, if you use similar EcoSystem on the surrounding terrains. If you use the same, dense-grass EcoSystem on each terrain, the multiple smaller terrains will look like one large terrain. Since I used a multilayered EcoSystem here with a dense grass layer, the terrains' underlying material was not too important either. I used the same rock material I added to the painted rocks, but I could have picked some soil or mossy rock too. Multilayered EcoSystems are useful if you want to have more control over the overall density of the different species, and their direction from surface. While the grasses' and the bushes' direction is 100% perpendicular, the trees grow rather vertically.

Assembling the scene

Planting the foliage for the EcoSystem

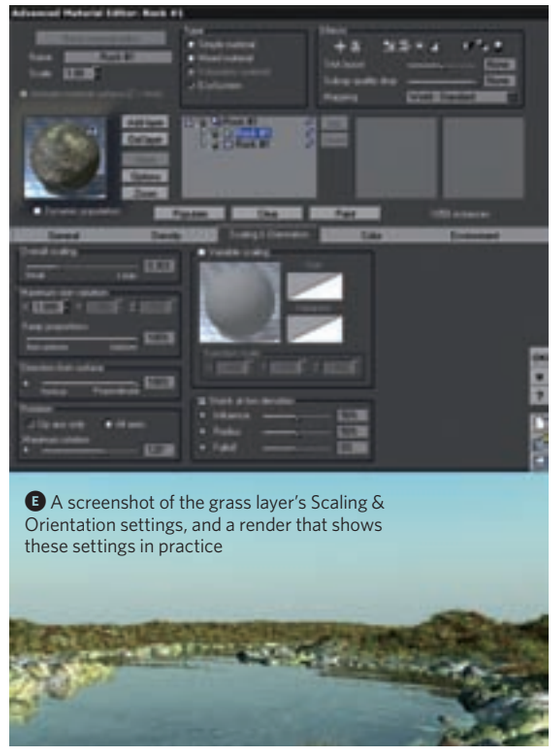
04 Creating the ecosystem – overview

Since I wanted to paint the scene in the colours of fall (autumn), this season determined my selection of plant species for the EcoSystem. The foreground terrain has one grass layer, the middle-ground terrains have two layers (grass and bush), while the larger, background terrains feature a third layer of non-HD fall rural maple trees too. D.

05 EcoSystem - grass

My first step of creating the EcoSystem was adding grass, as the first ecosystem layer. A fresh-looking, bright green grass wouldn't fit this autumnal environment, so I chose Buffelgrass from the AsileFX Sample Grass Pack. In order to increase the brownish look, I added Dead Grass from the same pack too. Since I didn't want the ground to be visible, I set the Density to 96%, I deselected Decay near foreign objects, I set the Direction from surface to 100% perpendicular, and then, to add some realism, I marked Shrink at low densities E.

D A screen capture of the material editor that shows the three layers of the EcoSystem



E A screenshot of the grass layer's Scaling & Orientation settings, and a render that shows these settings in practice

06 EcoSystem - bushes & non-HD trees

For the bush layer I picked Nadina Domestica from the Incredibly Lush Autumn Shrubs collection, and Bush 1 – Crawling. To make this bush fit the environment, I went to the Materials tab under the preview screen and changed the colour of its leaves to something reddish. I set the Density to 90%, and the Direction from surface to 96% perpendicular. I left everything else at default. I added another EcoSystem layer to the background terrains, and loaded Scott McEwan's non-HD fall maple trees from his Rural Maple Tree pack. To achieve a dense forest feeling, I set the Density to 80, and I left everything else at default F

F This render shows how the scene looked after adding the bush layer and the non-HD maple trees

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G This shot shows how the scene looked like after the EcoSystem painting. You can see how these plants and colours brought the scene to life

07 Manually placed HD trees

While non-HD trees are perfect for filling the background, as we are getting closer to the camera, we need to pay more attention to details and quality. HD trees are much more detailed and elaborate than non-HD trees, so they are a great choice for closer views. I placed HD maple trees from the same pack to the middle and foreground, creating a somewhat dense forest around the lake G.

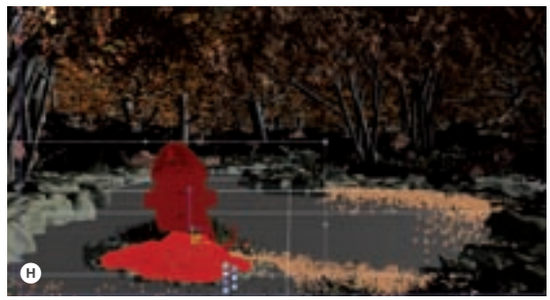
33 hours render time
Resolution: 3,000 x 1,688

08 The centre of attention

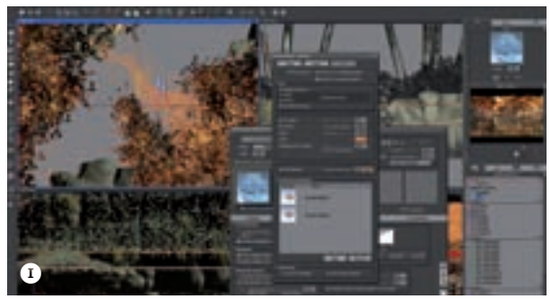
The environment was starting to look pretty nice, although when I viewed it I didn't know where to look, and the middle of the scene seemed so empty. When composing a scene, it is important to place an object, building, larger plant – something prominent – to the spot where you want to attract the viewer's attention. In this composition I followed the Rule of Thirds, and placed this tiny elven house with a boat onto a small island with a layer of rocks and a layer of grass ecosystem. This definitely made the scene more pleasing to the eye H.

09 Fallen leaves on the water surface

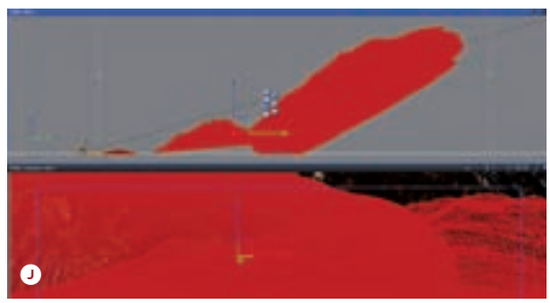
To add more detail and to increase the autumn feeling, I decided to paint some maple leaves to the water surface, near the lakeside. I took my water, turned its material into an EcoSystem, and added two Autumn maple leaves I've purchased from Cornucopia3D. To avoid floating leaves, I set the Offset from surface to -2cm, I set their maximum rotation to 180%, then I started painting the leaves on the water. As I was getting farther from the edge of the lake, I decreased the brush flow and density I.



H In this shot I highlighted the focal objects to emphasise their position



I On this screen capture you can see how I painted a path of fallen leaves to the water surface



J Side view and main camera view with the highlighted far background terrains

10 No sky visible

I wanted to achieve the feeling of being in the middle of the forest. For this, I needed to cover the whole sky with large, densely populated terrains placed to the far background. I used three horizontally stretched terrains with a single, dense (87%) layer of non-HD fall maple trees. The first terrain added more depth and density to the ground level, and the other two, larger terrains were rotated to cover the sky J.

Lighting and rendering

Atmosphere and lighting are the key elements in this scene. The soft, subtle lighting and misty atmosphere give the fairy-tale mood of the scene, and make it different from an ordinary shot of an autumn forest. You can use legendary creatures, buildings or other objects, but without the right atmosphere, the scene loses its purpose.

Although photorealism was not my goal, I wanted to make the scene as believable as possible. When it comes to lighting, Vue's Global Radiosity (GR) engine is the key, because – using photon calculations – it can mimic real-life lighting with reflected light. It is also essential to enable Indirect Skylighting to get colour-reflected light, and Optimized for outdoor rendering should be enabled if making a natural environment.

There is only one disadvantage to GR: since it uses a lot of calculations, it consumes more system resources, thus it can increase render time. That's why I reduced its quality to -2 while composing the scene – and to -0.5 for the final render, decreasing render time without visible quality loss.

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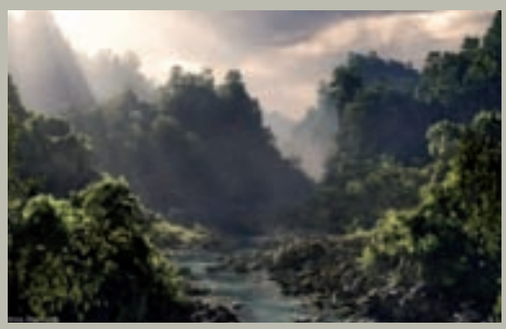
Artist showcase

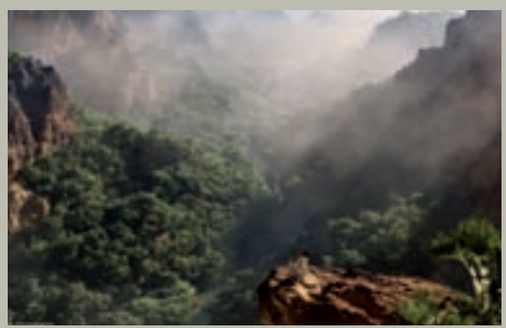
Drea Horvath

I am a 23-year-old self-trained freelance digital landscaper living in Budapest, Hungary. I started playing with Vue as a hobby about two years ago. It took a while to develop my skills to my current level, and to find the style that suits me best. Mostly I create large, complex environments, with powerful, dramatic atmospheres. Recently I joined iMU Studios' *THUNDER Throne Wars* game project as an environment and level designer.

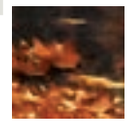


In Perfect Harmony **Vue 8 Infinite, Photoshop CS4 (2009)**
This render turned out somewhere between real and surreal, but I actually liked the result. The soul of the scene is the atmosphere; it's powerful and dramatic, yet it reflects peace and harmony

Sanctuary **Vue 8 Infinite, Photoshop CS4 (2009)**
My goal was to create a large jungle scene with realistic lighting and ascending morning fog. I populated the rest of the terrains with Alder, and for the foreground I used crawling bush and AsileFX jungle plants



Chasing Heights **Vue 8 Infinite, Photoshop CS4 (2010)**
This render is a the result of some experimenting with rock materials and functions. The unusual POV, the fog and the subtle God rays add some drama to the image



Lighting the scene

To give depth and make it believable

11 Global Radiosity and shadow softness

To make the scene look as believable as possible, it was clearly best to use Global Radiosity. I used a Gain of 2.0 to add some reflected light, and I increased the Sky dome lighting gain to 0.30 to add some light being reflected from the sky itself, just like in real life. Since most of the sky is covered by trees, this value of 0.30 was enough. Pulling the light balance to Sunlight (70%) decreased artificial ambient light, and the ambient light was set to come from the sky, instead of being distributed throughout the scene. Since the shadows don't have such sharp edges in real life, I set Sunlight softness to 3.00°, then I found the best sunlight direction K.

12 Sky, Fog and Haze

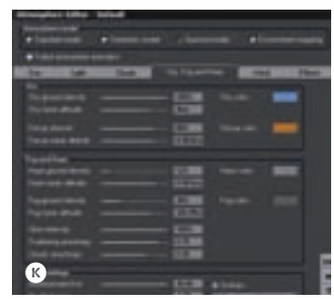
Sky settings didn't have a big role in this scene, so I left everything at default. Thick forest mist is a key element of such scenes. Sometimes it can be achieved by increasing Haze density, though in this scene I wanted to keep the colours as vivid as possible. So I ended up decreasing Haze density to 12%, and increasing Fog to 30%. To keep the warm reddish tones, I added a slight red tone to the fog colour (RGB 94 90 85). Since I wanted a somewhat powerful morning sunlight, I pulled up Glow intensity to 100%. For subtle rays, I used volumetric sunlight L.

13 Adding more depth

A very nice, mysterious forest mood can be achieved by increasing Aerial Perspective. It actually multiplies atmospheric values, making the scene look bigger. Here, my purpose was to add more depth and misty look, so I increased AP to 30, and added a fuzzy metacloud to enhance the effect. After global settings, the scene was ready to be rendered M.

Bitmaps and procedural materials

Besides using bitmaps to create materials, in Vue it is possible to apply a procedural method to create your own materials or use and modify presets as well, using fractals that are literally infinite. Procedural materials can be dependent on any aspect of the world that you create, such as altitude, slope, or height. In my scenes I use procedural materials for terrains and water, and plants have bitmaps.



K Screen grab of the Sunlight softness and Lighting settings

L Screenshot of Sky, Fog and Haze settings

M The difference is significant

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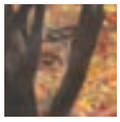

Rendering and post-production

Creating and tweaking the final scene

14 Final rendering

Render settings are based on a sensitive balance between quality and speed. Anti-aliasing: 4/256 rays were used for both object and texture AA. With a quality setting of 45% this provided good results and reasonably fast render. Settings like motion blur, DOF and blurred reflection were disabled, as they didn't apply to this scene and would have only increased render time. Advanced effects were left at the default 46%, as the GR and Atmosphere settings were tweaked independently. The scene took exactly 33h42'38" to render at 3000×1688 N.

15 Post-production – corrections

After finishing a render, my next step is always launching Photoshop and making some minor corrections (contrast, colour, levels etc) on the final render. It gives me more control over the final result, and some clever steps can do wonders to the image. My first step was adjusting the contrast in the most simple way, by hitting Auto Contrast. Then I duplicated the background layer, and applied Auto Color and Auto Tone on the copy, then changed its Opacity to 65%, where I liked the image the most. After merging the layers, I needed to reduce noise a bit O.

16 Adding more magic

The following technique is based on one of GeekAtPlay's tutorials, and I apply it in 95% of my work. In a mysterious forest scene this method works very well, since it adds more magic to the render.

Basically I duplicated the background layer twice, applied Gaussian blur with a 4.2px radius on the two copied layers, set the second layer's blending mode to Multiply, and the third layer's to Overlay. I adjusted their opacities to 20-20%, and got the result I wanted.

I added a very little soft light with brush to the darker areas, and finally I added a new layer, rendered clouds (with foreground and background colour black and white), hit Difference clouds, set the blending mode to Soft light, and the opacity to 18%. With this step I added some very subtle, soft shadows to the picture P.

Q ...and here is the final image after post-work

17 Final steps

I was just a few steps away from getting the desired result. Since the previous technique makes the colours more saturated, I needed to desaturate reds a bit. I adjusted Levels, and finally I used the Clone tool for minor corrections Q.

N A screenshot of the custom render settings that I used for the final render

O This is how the image looked after contrast and colour corrections. The changes are minor, but the picture looks quite different

P Almost ready. You can see how the technique I described works on a fairy-tale-like render

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Ce Shi

3DArtistonline

Username: trainfender

Personal portfolio site
http://hi.baidu.com/dashisc

Country China

Software used 3ds Max, ZBrush, Photoshop, V-Ray

> The main illumination comes from a VRSun light with mountain Sport Lights

Foraging 2010

This is a lizard patiently studying the environment. It was created using ZBrush, 3ds Max and Photoshop.

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First, the Zspheres were used to build the basic shape, then it was converted into PolyMesh. It was divided and sculptured to adjust the shape. Subdivision was used to improve the texture precision
The Edit Poly command was used to adjust the head tilt

Software used in this piece

3ds Max · Photoshop · ZBrush

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Modelling, Lighting, Composition

Software used in this piece

3ds Max | Photoshop | V-Ray

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Fred Bastide

Personal portfolio site www.texwelt.net

Country Switzerland

Hardware used AMD 1800+ 1GB, plus Pentium III 733 1GB for some additional renders

Expertise Monster and creature CGI images. Fred thinks he has better skills in texturing and rendering than in modelling

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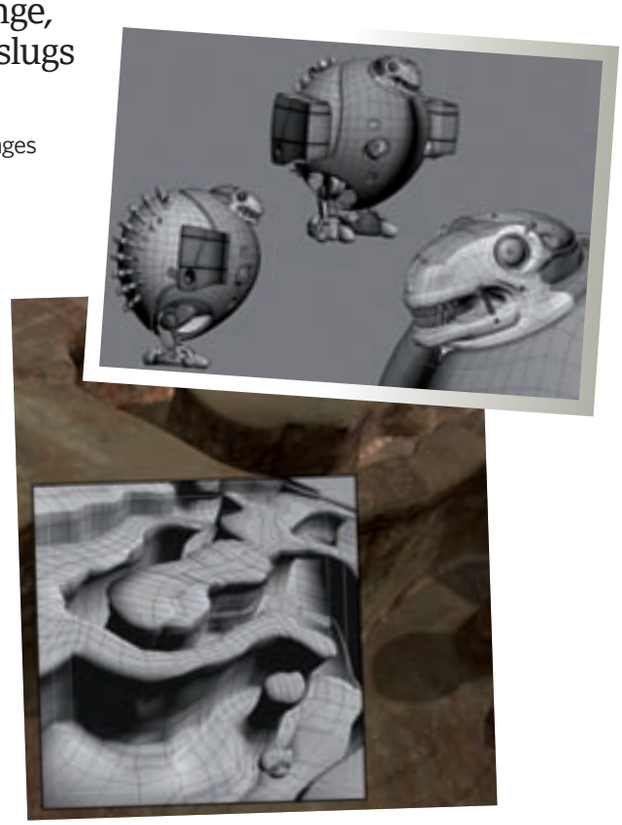
Step by step: Create an alien battle scene

Helix Rugens One 2004

> The picture, done for a CG challenge, depicts the epic fight between space slugs and flying atomic hedgehogs

Fred Bastide specialises in monster and creature CGI images

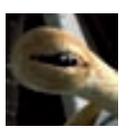


This picture has multiple mini storylines and featured a lot of different elements, in a complex composition, so the principal difficulty is to deal with that purpose and clearly define and prepare each step. That's why I've done a lot of sketches, some clay models and quick 3ds Max pre-render featuring all simplified elements of the image.

Because many of the characters are shot in flight and don't have direct interaction with others, it was clear early on that elements would be rendered in different layers and adjusted in Photoshop. I did the image with 3ds Max, Photoshop and rendered with V-Ray. Some texture UVs were unfolded using Unfold3D.

The complete process spanned two months, during November and December 2004, and took me about three weeks of work. I did it for the CG Society challenge, 'Space Opera – icons of galactic civilisations and conflicts'.

Because I took a humorous approach to the subject, I chose to oppose animals whose main characteristic isn't fighting spirit. Though the subject was silly, I decided to treat it very seriously, and in a realistic and academic way.



Concepts

Inspiration behind the scene

01 I did first some Photoshop-enhanced sketches to define the features of the two different species featured in the picture. The space slugs would be the good guys of the story; they will receive a higher anthropomorphism value than atomic hedgehogs, which are ruder and more aggressive.

02 The slugs' ships are massive and not really aerodynamic. The point wasn't to give a look of speed – I wanted them strong, giving a secure impression, like the shell of a snail. This adds to the other world feel of the final image.

03 Sometimes, I like to make some quick real-life study for organic elements, so I did a rough Plastiline model of the visible part of the slug pilot, and of the head of the hedgehog. It wasn't to create a nice sculpture, but just to have an idea of the principal masses of the character.

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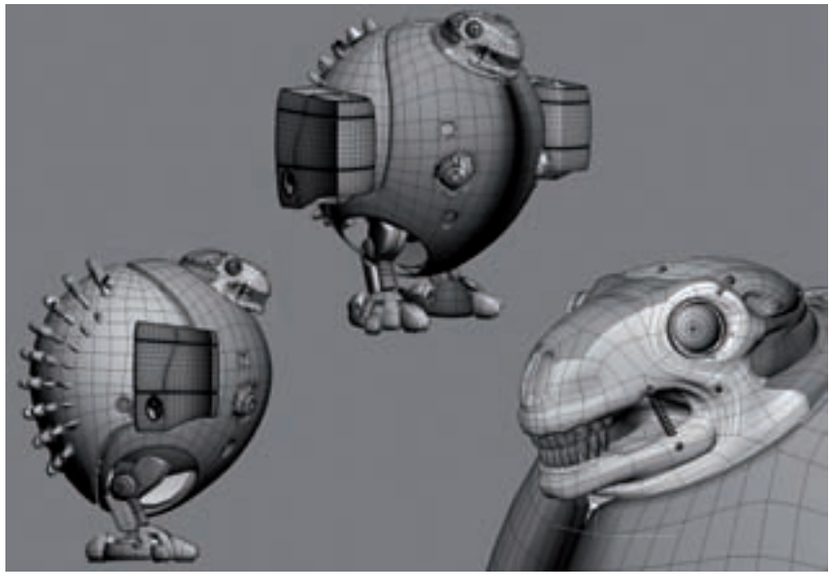
Modelling the aliens and ship

Modelling the characters

04 **Once the pilot's** clay model was photographed, the pictures were mapped on 3ds Max planes to serve as a template for modelling, principally using the extrude edge method. Because the pilot's posture isn't really complicated, I chose to model the character directly in the posture.



20 hours render time
Resolution: 4,150 x 4,150

05 **For the atomic** hedgehog's body, I used a spline structure and a surface modifier. I simply extruded a selection of faces to obtain the round-shaped spines on the back. All the other parts are made of primitives, converted to editable polys. All of the elements featured on the picture are really basic.

Rendering

To save some render time and memory issues (keep in mind we're in 2004), I did various detailed versions of each elements, depending on the distance from the camera. Due to memory crashes generated by the use of displacement during the render process of the canyons, I cut the 6000x6000 pixels in three 3000x1000 stripes. I had to cheat a little bit with the camera settings, because the foreground pilot slug was too heavily deformed by the lens settings I used for the main scene. Considering there aren't any straight lines in the picture, the perspective trick isn't really noticeable on the final image.

06 **The choice of** the canyon terrain type was dictated by the action possibilities that it gives. The landscape was based on a set of splines, bevelled and converted to editable polys. Slice mineral details were added on the canyons with a V-Ray displacement modifier.

07 **After some unwrapping** UV work, the time came to paint the different sets of textures. All the ship part materials were made of a blend shader, comprising a composite matte old paint material and a shiny metal material. All textures were a combination of Photoshop-painted textures and photography elements.

08 **A similar blend** material was used for the atomic hedgehogs, but to have a more shiny metallic material than the matte one of the slug's ship, I faked some reflection with a HDRI map with a high blur value. If I had to do it again right now, I would combine texture sets with a cooked occlusion pass.

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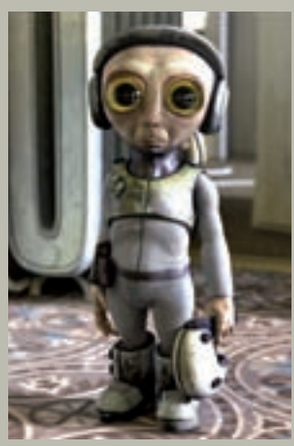
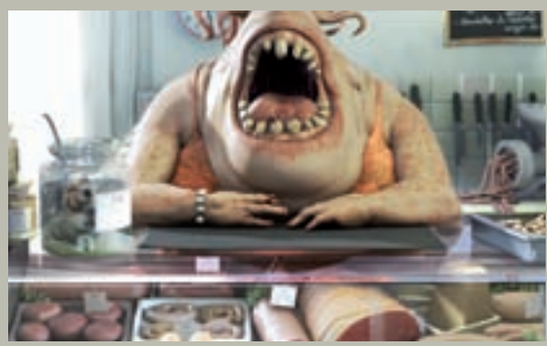
Artist Showcase

Fred Bastide

I'm 39 years old and I live and work in the French part of Switzerland. I had a classical artistic education and I'm a graduate of the 'Ecole des arts appliqués de Vevey' and 'Ecole supérieure d'arts décoratifs de Genève'. My 3D works are essentially done for advertising, but I currently work for a TV show project.



Small Invader **3ds Max, Photoshop, V-Ray (2005)**
A tiny alien invader, rendered in a CG reproduction of the hallway of my own apartment. Nothing really difficult here, but a lot of time spent to set up the lights and GI to obtain exactly the ambiance I had in mind.



Cold Meat **3ds Max, Photoshop, ZBrush (2006)**
A vegetarian nightmare done as a personal work. This time, I used the featured mental ray render engine, essentially because of the sub-surface scattering shader I needed for the monster skin and the meat products.

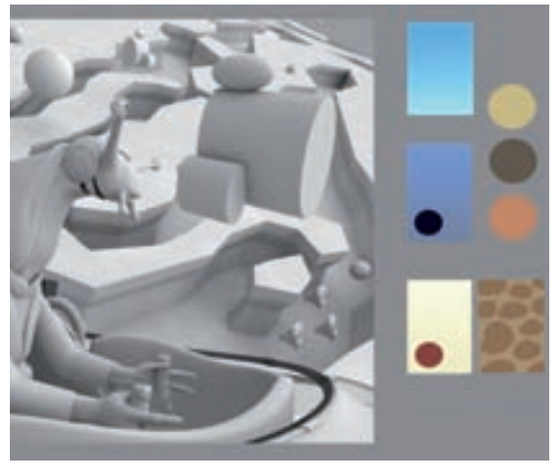
The Chase **3ds Max, V-Ray, ZBrush (2009)**
A recent personal image, rendered with V-Ray. A lot of ZBrush work in that one. Again, the principal source of inspiration was the typical Seventies European sci-fi images of my childhood.

Creating the scene

Finishing the ship and setting the scene

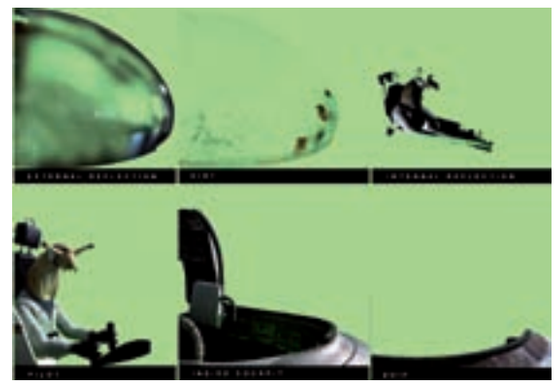
09 **Originally, the cockpit** was planned to be a third bigger than the one on the final render, so the internal measurement and control supplies have been modelled, except for very small parts like needles of the dials (visible upward, on the wire-frame of the slug). Considering the final render, a bitmap was sufficient.

10 **Missile and bombs** were created using primitives. The smoke trails were made of a helix spline, converted to an editable poly and deformed with an 'ffd box'. The slug troopers were directly created inside 3ds Max, without a template. They are not all that detailed, because they were very tiny on the final render.



11 **I first made** a quick 3ds Max pre-render including all simplified elements of the image. That dummy scene was used to define the principal lines of the composition and to set up the light atmosphere and colours of the image.

12 **The glass globe** was rendered using multiple passes, composed with Photoshop. Because every element was rendered separately, I had to use some tricks with that part of the spaceship. The reflections were faked, in two different passes. I faked some refraction effect on the slice part of the globe and I finally added two dirt passes.



13 **The clouds were** rendered separately, and Photoshop-painted to add some volume. When rendering the landscape, I added a mask to the principal light, to fake the shadows generated by clouds. Those cloud shadows were ultimately almost invisible on the final image.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

André McGrail

3DArtistonline

Username: Verasl

Personal portfolio site http://andre.phaedra.co.nz

Country New Zealand

Software used Modo401, Photoshop

"The entire bike is made in SDS subdivision in modo, giving it the ability to be rendered close up by automatically adding polygons; it also ensures there are no very sharp edges, getting rid of the CG look"

Suzuki Intruder 250LC 2010

I've created the bike for a portrait piece I'm working on which will include the bike's owner – my beautiful girlfriend – on the bike in the desert. Since it's the first finished piece and turned out better than expected, I decided to render out a product style shot using the new SLIK kit from Luxology.

"I wanted it to resemble a professional photoshoot, so spent a lot of time moving lights so reflections look sleek and simple, to bring out the bike's shape"

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“With my lighting I used the new SLIK kit from Luxology, a kind of content pack with pre-made studio lights and tons of options to set up any type of real-world photography lighting. This, mixed with global illumination gives a professional-looking render”

“Three passes were rendered: final colour, depth and an alpha of the bike. Using Photoshop I added a subtle bloom effect, brought the bike out and used Lens Correction to add camera artefacts”

Software used in this piece

modo Photoshop

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Step by step: Build your own monster

Frankenstein's Monster 2009

> My primary goal was to create a portrait that would have some sort of impact on the viewer

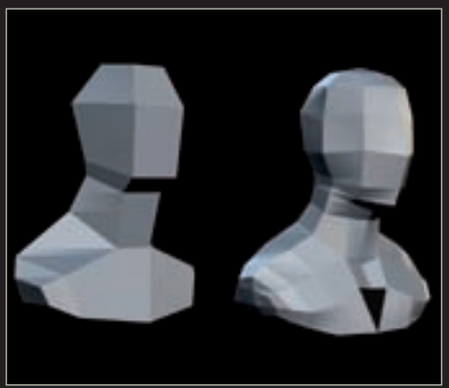
Anto Juricic specialises in character modelling and texturing

The saying 'a picture is worth a thousand words' was my primary guideline on this project and I hope this image can say a few words. It was a big challenge for me at that time to overcome technical challenges because this was one of my first Maya projects, but even more challenging was to create something that would touch the viewer. I have always wanted to model Frankenstein's monster because he's a classic character with such a strong story, so this was a great opportunity. Many great artists have done their versions of this subject and they did great work, which makes my job more difficult. I thought the best way to reach the viewer was through facial expression and the look of his eyes that would tell the story about a sad, lonely monster. With that in mind, I planned how to achieve my goal. The first thing was to split all the work into different tasks: sculpting a base mesh, retopology, making a high-definition sculpt with new clean topology, making clothes, posing, unwrapping, texturing, lighting, rendering and, finally, compositing.

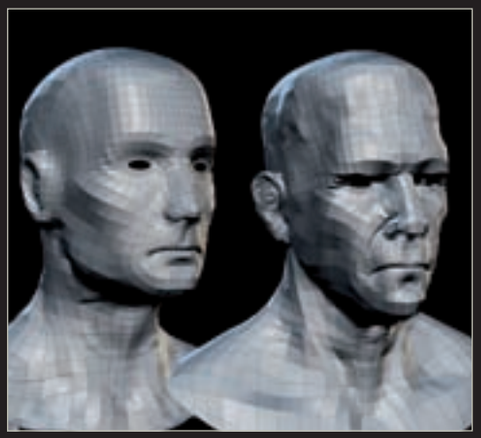
Concepts

Inspiration behind the scene

01 **With every personal** project I do, I am trying to learn something new through creation rather than using the same workflow over again. This time I decided to take a more artistic approach and use digital sculpting as much as I could. The quickest way for me was to make a simple ZSphere bust model in ZBrush.



02 **After extending a few** spheres from the central one to shape the shoulders, neck and face, I converted the ZSpheres to geometry. This made my first base mesh, which I would use for sculpting a generic human bust. The best tool for shaping geometry at this stage is the Move brush, and for higher levels I mostly used the Clay Tubes brush.



03 **After making the** basic bust shape, the next task was to make a new topology that I could use later for texturing and rendering in Maya. I used ZBrush retopology tools for the task and reshaped the new topology to create the overall monster shape.

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On the Disc

Save yourself some modelling time by using the ZBrush model and maps.
Franky posed.ZTL

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Anto Juricic

Personal portfolio site anto-toni.cgsociety.org
Country Bosnia and Herzegovina
Hardware used Dual core 2.21GHz, 2GB RAM
Expertise Anto specialises in character modelling and texturing

Sculpting, Modelling, Lighting

Software used in this piece

Maya | ZBrush | Silo | Photoshop | UVLayout

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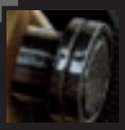
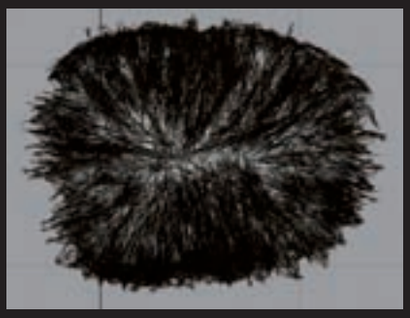


Modelling the monster

Bringing out the details

04 **The best advice** I can give regarding sculpting is to not rush in too soon with the details. Overall shape and form is more important than skin pores and a few wrinkles, so make sure that you have used every polygon before stepping up to next SDiv level. Again, for this step I used the Move brush, Clay brush and custom Standard brush.

05 **After a couple hours** of sculpting, I was happy with the results and I added some clothes which I modelled in Silo. Making the facial expression really gave life to this work and for that task I mostly used Move and Nudge brushes and Transpose tools for posing. I also added some simple geometry for the eyes and metal parts on the neck.



06 **I have tried** a few different solutions for hair and the one that works best for me is the Shave and Haircut plug-in for Maya. If you are working in 3ds Max, that plug-in is already implemented as the hair and fur system. Basically, workflow is simple: I made a scalp geometry which I populated with hairs.

07 **Shave and Haircut** is also powerful for simulating dynamics, so first I simulated some freefall of hair over the head geometry. Combing hair was really fun with the many brushes integrated in this tool and I found that using the Translate and Puff Hairs Up brushes alternately worked best for me.

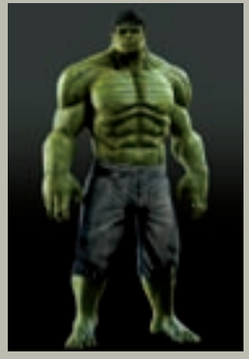
08 **Rendering of hair** was a bit difficult and after much trial and error I decided to render hair with Maya software render, which is quite fast for this task. I also rendered one additional pass to improve the overall look of the hair, by adding ambient occlusion rendered with mental ray.

Artist Showcase

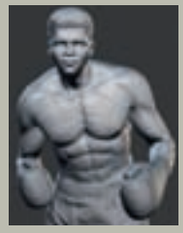
Anto Juricic

I am a self-taught and highly motivated 3D artist specialising in modelling and texturing. I'm very passionate about modelling and texturing characters and creatures. I currently live in Bosnia and Herzegovina and I work in the Prime Time production studio in Sarajevo as a character modeller.

The Incredible Hulk **ZBrush, 3ds Max, Photoshop (2008)**
This was one of my first fully completed 3D renders and I still like it today. The main goal was to test and set up a pipeline and workflow for future works. I made the base mesh in 3ds Max, sculpted in ZBrush and rendered back in 3ds Max.



Obama **Maya, ZBrush, Photoshop (2008)**
This was my first Maya render. I chose Mr Obama because of his characteristic facial features. I'm fairly happy with the likeness, but mostly I am satisfied by the overall look, especially the lighting and shading. I reused this lighting later on the Frankenstein's Monster image.



The Greatest **ZBrush (2009)**
This is a digital sculpture, made entirely in ZBrush, which served as a great opportunity for practising the anatomy of the male torso. I also tested some new features in ZBrush 3.5 R2 on this project and it was great fun.

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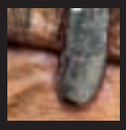
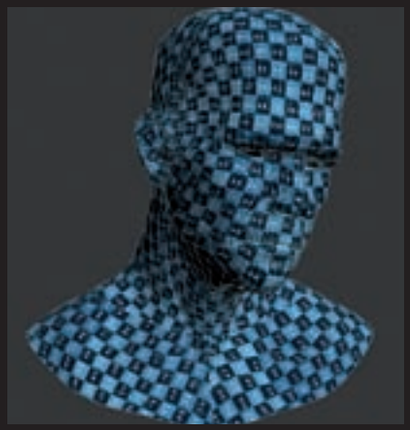


Textures and lighting

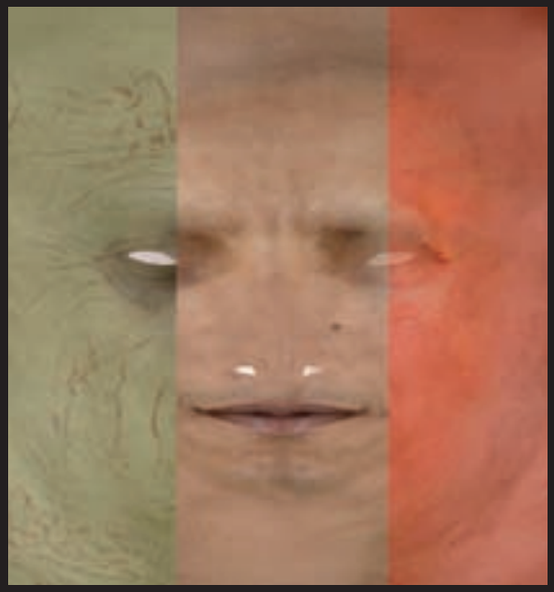
Getting the right look and feel

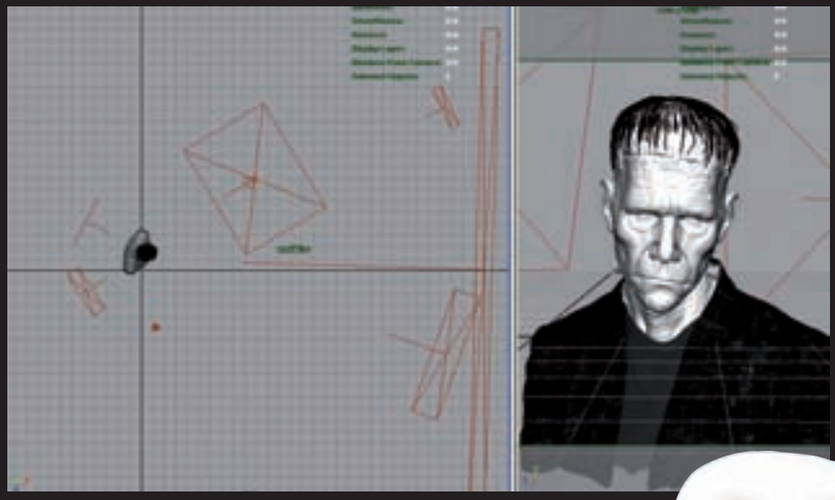
09 **After completing all** the geometry, the next step was to make clean UV coordinates. For that task I used the headus UVLayout application, which is great for making fast and clean UVs on organic models. This task is important because texture relies on the model using these coordinates.



10 **My goal was** to make the monster look more alive. To do so, I used a few different face photographs and projected them directly onto the geometry inside ZBrush using the ZApp Link plug-in. After that, I hand-painted some missing details in Photoshop. I repeated the whole process for the clothes.

11 **To achieve a realistic** kind of look, I planned to use mental ray for rendering, and its great Fast Skin shader. This shader comes with many slots for textures that need to be fed in, in order to create real-looking skin; but I decided to use only the main ones such as overall colour, front and back scatter, specular and bump.

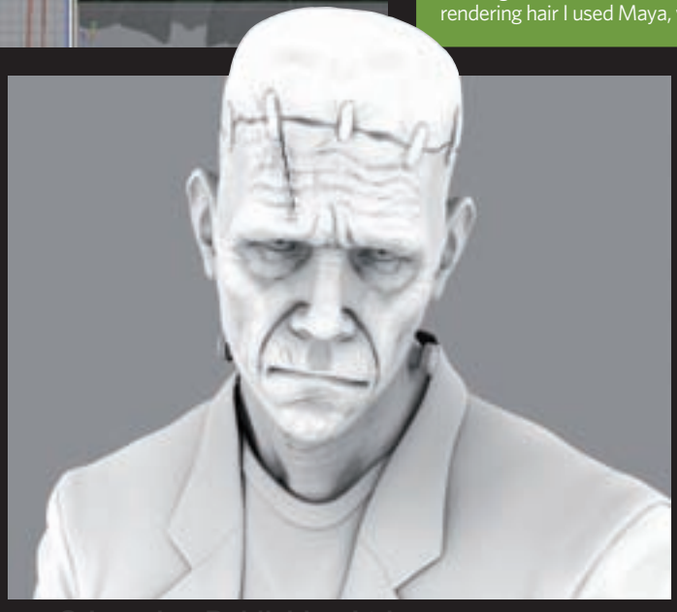




Biggest challenges

Among all the technical challenges that I came across in this project, making the facial expression was the most difficult since I did not do any concepts or pre-visualisation. To make this image look realistic I needed a good understanding of how human skin reacts to light and to translate this to the mental ray skin material. Also, different light types react differently with this material and I recommend area lighting as the best solution. For creating hair I used the Shave and Haircut plug-in. For rendering hair I used Maya, which does so really fast.

12 **Basically, I imagine** lighting as painting the image with light, so every light in my scene has some colour and purpose. Most of the lights in this scene were area lights, because they can produce very accurate shadows and a soft feel. Also, area lights react with the specular component of the Fast Skin material; so the bigger the light, the wider specular reflections, giving you great control over the final look of the skin.



45 minutes render time
Resolution: 3,000 x 3,000

13 **After numerous render** tests, I rendered a few different passes: main beauty pass, extra reflection pass and ambient occlusion. The most important thing about compositing different passes is to understand that everything that emits or reflects light should be layered over diffuse in additive or screen mode; and passes that subtract light, like shadows and occlusion, should be multiplied.

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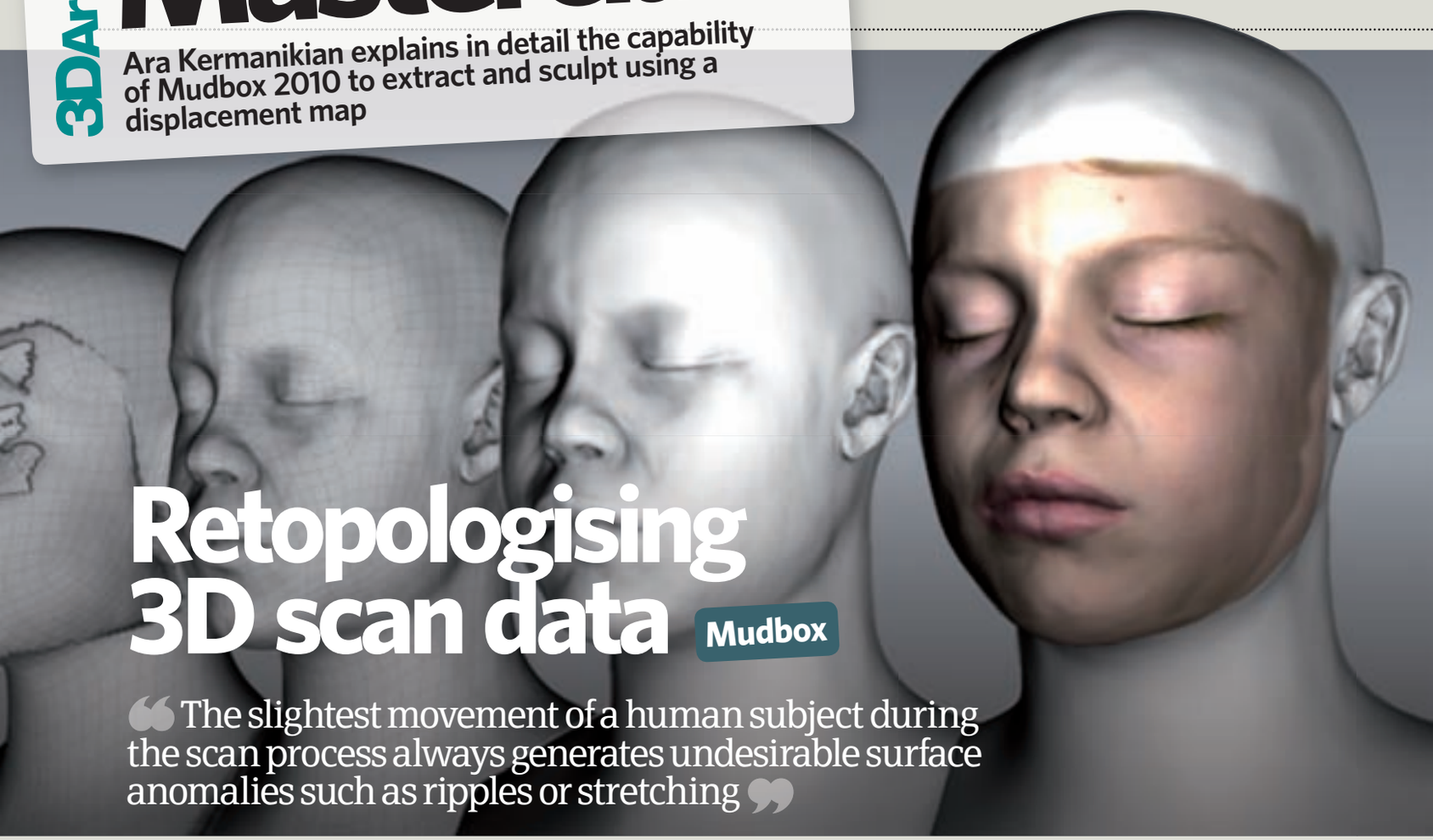
3DArtist

Masterclass

Ara Kermanikian explains in detail the capability of Mudbox 2010 to extract and sculpt using a displacement map



Retopologising 3D scan data

Mudbox

> The slightest movement of a human subject during the scan process always generates undesirable surface anomalies such as ripples or stretching

It's a tangled web we weave when we work with polygonal meshes. Whether you start out with 3D scan data, a primitive like a cube or sphere, or sometimes even a premeditated base mesh, you will inevitably at some point run into limitations that will require you to retopologise your 3D sculpture. With 3D scans, these limitations manifest themselves at the onset, at which you are faced with the following challenges...

The data is usually in the order of thousands or even millions of random triangles arranged in a pattern that perfectly represents the surface of the scanned subject. Even though the representation is perfect, the make-up of that representation is not.

The slightest movement of a human subject during the scan process always generates undesirable surface anomalies such as ripples or stretching.

Occluded areas, such as ones that fold over or have holes on the surface of the scan subject, are blind spots for the 3D scanner and can cause unpredictable anomalies or gaps. A recurring example of this on a 3D scan of a human head is ears and nostrils.

Surfaces that are reflective, transparent, extremely dark or contain small multidirectional fibres such as hair also result in undesired anomalies.

3D scan data does not contain UV mapping coordinates that enable texture artists to paint on the model or for modellers and digital sculptors to add, remove or enhance features on the model.

Retopology is the process of reconstructing your model with a polygonal layout and edge loops suitable for sculpture and animation, with properly laid out UVs and uniformly distributed quads throughout the model. There are several ways to retopologise a model, be it in your favourite 3D application – such as Maya with the NEX plug-in, 3ds Max, ZBrush, Modo or 3D-Coat – or using specialised retopology tools like TopoGun or CySlice. Even with the best tools, the process is repetitious, banal, tedious and sadistically hypnotic.

For certain models, however, the Extract Displacement Map, and Sculpt Model Using Displacement Map features in Autodesk Mudbox make this process speedy and less of a pain. Using the following quick and easy steps, you can transfer the detail of the 3D scan or digital sculpture onto the topology you need.

Displacement maps are 32-bit, 2D, greyscale images that correlate depth information detail of the surface of a high-resolution sculpture to the values of grey in the image. They are commonly used for rendering lower subdivision versions of models with the high-resolution detail in renderers such as mental ray and RenderMan.

In this masterclass I will go through this process with a 3D scan of my son William's face, which I scanned using the NextEngine Desktop 3D scanner. Remember that the same process can also be applied to a digital sculpture that has hit the limitations of the base mesh or 3D primitive you started with.

01 Import the scan data and align the pieces

Import the .obj files of the scan data into Mudbox. If the scan data is in one piece, you are done. If it is in multiple pieces scanned from different angles, as is the case with my scan of William, you need to match and align the pieces using the Select/Move tools in Mudbox, specifically the Translate and Rotate tools. Align the pieces as best as you can, making sure the pieces overlap in the appropriate areas A.

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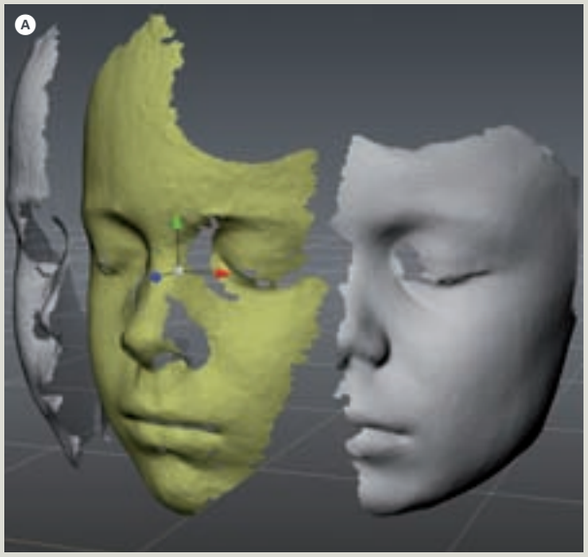

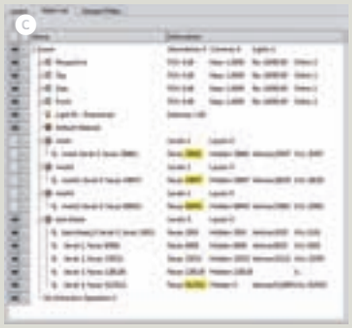

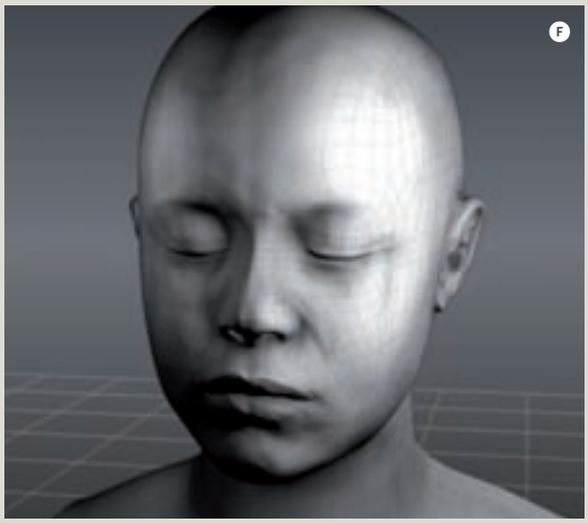

Retopology and 3D scan data clean-up best practices

You can apply the displacement map extraction and sculpt using displacement technique as many times as you need to in order to get your topology aligned the way you need it. This might be handy when you are further in the clean-up, sculpting or texture-painting process and discover you need to adjust the alignment of the topology.

Clean up 3D scan data anomalies and sculpt form at the lowest subdivision level possible, then work your way up, and back down if necessary. This will save you a lot of time.

02 Append the base mesh and align key facial landmarks

Import and roughly match up a properly modelled and UV'd base mesh to your digital sculpture or 3D scan data, making sure the topological landmarks are aligned. For simplicity, in this case I used the stock Basic Head mesh in Mudbox, but I usually use one of the many base meshes from my library, depending on the need. The points on the face you want to match are the tip of the nose, edges of the mouth, the tip of the chin, edge of the cheekbones, the eye loops, the temple and the ear loops **B**.

03 Extract the displacement map

Extract a displacement map from the detailed model onto the UVs of the base mesh by clicking Maps> Extract Texture Maps> New Operation. Check the Displacement Map option. Add your base mesh in the Target Models list box. Add the one or many high-resolution 3D scan meshes to the Source Models list box. For Choose Samples use Closest to Target Model and click Best Guess and accept the value it generates for the Search Distance. Use an image size of at least 2048x2048, Use the 32-Bit Floating Point RGBA TIFF or OpenEXR file format and name your displacement map and click Extract **C**.

04 Discard or hide the 3D scan data and subdivide the base mesh

At this point, make note of the sum total polygon count of your high-resolution sculpture, or the 3D scan data pieces in the Object List. You can then hide or delete the 3D scan data meshes in the Object List and subdivide your base mesh by clicking Mesh> Add New Subdivision Level until the number of polygons in your subdivision level is more than the number of polygons you made note of **D**.

05 Apply the displacement map

Use the Maps> Sculpt Model Using Displacement Map capability to apply the detail of your original sculpture to the subdivided base mesh. Choose your base mesh as the Target Mesh and navigate to and select the Displacement Map you extracted in step 3 and click Go. This will make the magic happen, where you will see the detail of your original model or 3D scan on a base mesh with the topology you need **E**.

06 Sculpting anomalies and adding details as necessary

Mostly using the Grab, Smooth and Flatten sculpt tools, sculpt out any anomalies by starting at the lowest subdivision level and working your way up. Make sure to use lower levels of brush strength, and build up your strokes so you don't destroy any details. You will find that your workflow will be much faster and easier if you continuously move up and down the subdivision levels to find the earliest incarnation of the anomalies and fix them at the lower subdivision levels first. Use the many Mudbox sculpting tools to add and sculpt details as needed **F**.

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Questions & answers

Welcome to the Q&A section where we answer all manner of techical questions on the most popular 3D programs such as Maya, Max, CINEMA 4D, Poser and Vue

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The Advisors

Maya
Lance Hitchings
www.hitchingsdesign.com

Lance is our Maya master, but in this issue he uses his knowledge of mental ray to explain how to optimise the latter in order to render scenes more efficiently

3ds Max
Ryan Knope
info@ryanknope.com

Ryan is our architecture and 3ds Max expert. This time, he looks at how to use different camera focal lengths to achieve a better visualisation

mental ray

Efficient rendering

"How do I optimise mental ray to render more efficiently?"

Mental ray is one of the premiere rendering engines available, and although it produces beautiful, photorealistic images it can be very expensive, in terms of resources. And this can translate to scenes being either slow or impossible to render.

There are a number of things we can do to either speed up the render, or resolve issues that make it impossible to render. To begin with, we need to optimise the scene, removing geometry and nodes that we no longer need or use and deleting history that's no longer needed.

01 Diagnostics

Now we'll run some render diagnostics, and there's a couple ways to do this. First, in the Render menu set, go to Render> Run Render Diagnostics. This will open the Script Editor, run the diagnostics and print out the results in the Script Editor. You'll see any issues there as warnings.

Mental ray is a ray-tracing engine and it subdivides into smaller and smaller partitions, or tiles, as it renders. Large, broad areas with little detail don't get subdivided very much; areas with a high amount of detail get subdivided much more. To accelerate this process, mental ray uses a method called BSP (Binary Space Partition tree). You can set the attributes for this from the mental ray Globals. You can access these from the Outliner by unchecking DAG objects only in the Display menu. In the Attribute Editor, open the Memory and Performance section, then the Acceleration Options section. The Bsp Size sets the size of the partition, and the Bsp Depth sets the level of subdivisions.

To optimise the BSP acceleration, open the Render Settings window and, under the mental ray tab, open the Diagnostics section and set Diagnose Bsp to Depth, then pull a render. You'll get a very fast colour-coded image. Blue stands for low levels of subdivisions, light blue and green for more, and yellow and red for the highest levels of subdivisions. Ideally, you want to see a good balance of colours, with red only being present in the areas of highest detail (as in picture B).

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CINEMA 4D
Daniel Lovas
http://lovas.cgsociety.org/gallery/

Daniel is our resident Cinema 4D specialist. Here he shows how to create an animation of a laser beam cutting a surface, complete with sparks and other effects

Vue
Dominic Davison
www.3dartistonline.com/user/dom1

Dom is one of the top people creating realistic landscapes in Vue. In this issue, he explains how to make more realistic icebergs

Poser
Paul Francis
www.3dartistonline.com/user/stormdraingfx

Paul is a former modeller for programmes like *Red Dwarf*, and he is also an accomplished photographer. This month he uses z-depth to mimic depth of field

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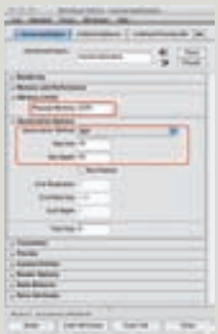
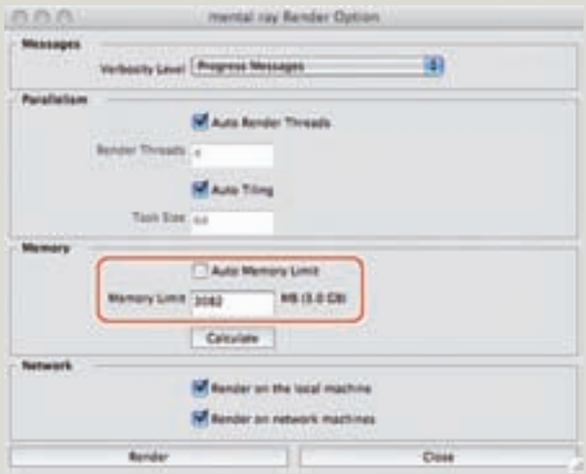


A

B



C

Picture A shows the result of the default Bsp Depth of 40, while B shows the result of changing the Bsp Depth to 30, which rendered this scene some eight seconds faster.

02 Memory

Also in the mental ray Globals, under Memory and Performance, you'll find the Memory Limits section. In order to render a scene, mental ray must hold the data for the entire scene, plus all of the texture maps in memory. As it asks the OS for more memory allocation, the OS will eventually deny it in order to preserve enough memory for itself. At this point, mental ray will attempt to flush the memory from the scene cache and keep going. If the memory usage is already too high, this may fail and crash the render.

In order to prevent this, you should set the highest absolute level of memory that mental ray can use before flushing, and this level should be lower than the level that it would attempt on its own.

You should set the memory limit to about 80% of the available memory, and you can do this in two places. The first method is as follows: in the mental ray Globals, under Memory and Performance> Memory Limit, set the Physical Memory amount. Alternatively, in the Render menu in the Render Current Frame option box, turn off Auto Memory Limit and set the amount in Memory Limit C.

03 Additional Tips & Tricks

Here are some additional tip and tricks. If you're going to be using motion blur, set the Primary Renderer to Rasterizer (Rapid Motion) instead of Scanline D.

If you're using displacement maps, particularly for organic characters coming out of ZBrush or Mudbox, hit the Calculate Bounding Box Scale button in the Displacement Map section of the objects shape node E.

D

E

If you're using an IBL node and Final Gather, use a small, blurred HDR image. And by small, I mean like 360x180. In addition to speeding up render times, using a small, blurred HDR image will also significantly reduce flickering in animations. You'll still need to use a large image for reflections, but it doesn't need to be an HDR image (unless you're using a linear rendering process).

04 The .map Format

Finally, convert all of your texture files to the .map format. Although this may not always speed up your render time (and may actually slow it down in some extreme cases), it will allow mental ray to make better use of the memory it allots to the texture cache, by loading texture files into the texture cache as needed and then flushing them when no longer required. Maya will do this for you automatically.

In Preferences, in the Settings> Rendering section, set up the attributes as shown F. You may want to designate a custom location to save the new texture files. Then hit the Update optimized cache textures now button. Maya will convert all assigned texture files into the .map format and save them to the specified location.

F

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3DArtist Questions & answers

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Poser

Delving into the depths

“How can z-depth maps in Poser be used for post-work?”

Using Poser Pro, I tried to render the image you see here at 3,000 pixels high, with depth of field; after 30 hours of solid rendering, I gave up – what I needed was a depth-based render and Photoshop.

Z-depth is one of the most vital concepts to grasp in CG production; it is what allows, for example, elements of live action to pass in front of and behind a CG element and vice versa. In still images, it is a vital tool in the successful use of depth-based effects such as atmospherics and depth of field.

The very fact that it is such a fundamental and essential element makes the omission of depth rendering in Poser all the more frustrating. Fortunately, however, there is a Python script available at Runtime DNA (SKU Semi-RD012). Written by Basil Gass, ‘Render Passes 3 - FX’ produces a depth render and has now become an indispensable part of my workflow. A z-depth-based greyscale render shades the objects nearest to the camera as white, gradually darkening with distance until the furthest objects are black. This information can then be used in Photoshop to post-work a flat render; here we are going to use it to mimic depth of field.

The Raw Material

The original Poser Pro render is on the left of the middle-right picture; as you can see, the background is distracting at the moment and it is a fairly flat-looking image overall. I wanted the image to show some depth of field to make it more realistic, and to make the figure pop out of the screen, by throwing the background out of focus. Using Basil’s Python script, I produced a depth render; I thought the result was a bit flat, so I’ve boosted the contrast to differentiate between the shades of grey a bit more – it shows up better on the printed page too. The result is the large image (above).

The original Poser render on the left, and the depth-based greyscale render on the right

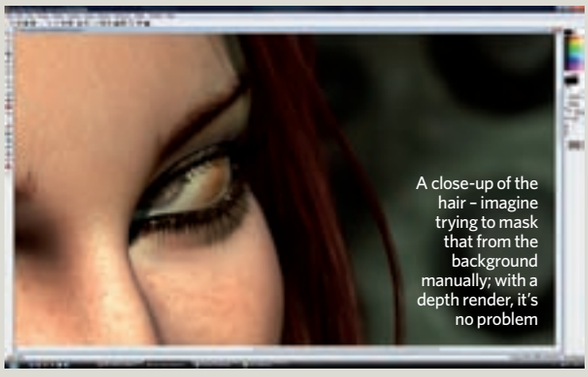
Photoshop Magic

This is where Photoshop (or a similar program) comes in; having loaded the original Poser render, you need to open the Channels tab and add a new channel, which will become the Alpha 1 channel. Then load up your depth render, copy it and paste it into the alpha channel you created; this has the effect of producing a mask based on your depth render. The further from the camera in your original image, the stronger the mask is. Click on the RGB channel and then go to your Lens Blur filter and set Alpha 1 as the source.

In Photoshop, the depth render is loaded into the alpha channel; on the right is the Lens Blur preview

Fine Tuning

If you click anywhere on the Lens Blur preview, that point becomes the equivalent of the focal plane: areas behind it become blurred, and so do areas and objects in front of it. The Radius option controls how much these areas are blurred; I used a value of 45 here. The final result is pretty good, and far quicker and more controllable than the native Poser depth of field. Also, you can use the depth render for other depth-based effects, such as haze and lighting effects behind objects.



A close-up of the hair – imagine trying to mask that from the background manually; with a depth render, it’s no problem

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3ds Max

Going long

"How can different camera focal lengths be used to make visualisation look more interesting?"

Utilising a camera's properties in your favour can make a huge difference in a render. It can create interesting effects along with helping you fit more into your view than the default lens parameter. This is often a topic that comes up when you have a tight space and the client would like to see a larger span or view. I am using Autodesk 3ds Max 2010, although most topics discussed can be transferred to other 3D applications.

When choosing a smaller lens, it will make the objects and space look longer. Often the walls will look slanted instead of straight. To fix this you can use the Camera Correction modifier.

To create a more realistic end render or to help the viewer focus in on the part most important part of a render, depth of field can be added. This lets either the very close elements blur out, or the really far ones, depending on the focus plane distance/target.

The result of applying depth of field with different f-stop values and target distances

With Camera Correction
The Vertical Wall Edges Are Straight.
Without Camera Correction
The Vertical Wall Edges Are Skewed.

You can fix the problematic skewing/looming result of using a very small or large lens by applying the Camera Correction modifier

In the main image (top) you can see the difference between small, medium and large lenses. The camera is positioned at the same location for all three shots, with camera correction applied.

Using Lens Sizes And Camera Correction

Try using a smaller lens to add drama to a render. This will help give the illusion that the room is huge and long. This also works well for hallways and other narrow rooms.

Respectively you can use a larger lens, providing a smaller field of view to create a looming effect. This tends to give a emphasis on height rather than length. While this works well for stylised scenes, you may want to check with the client before processing a full-size render, as it may not match the concept or space according to the client's vision.

In most cases, camera correction will help with the skewing or bending that takes place. In 3ds Max you can apply camera correction by going to Modifiers> Cameras> Camera Correction. This modifier has a 'Best Guess' option which works well much of the time.

Utilising Depth Of Field

Depth of field can be a powerful effect and is quite easy to set up. In 3ds Max and mental ray, depth of field can be added to a perspective view via the render settings dialog (Renderer Tab) or it can be added through a camera's properties.

Set the camera's target up to reach the area you wish to have most in focus; it will then fade the focus in each direction from the target. The f-stop value is another important item when using depth of field. This value will raise the focus (higher value) or decrease it (lower value). For instance, using an f-stop value of .1 creates a more out-of-focus image than a value of .7.

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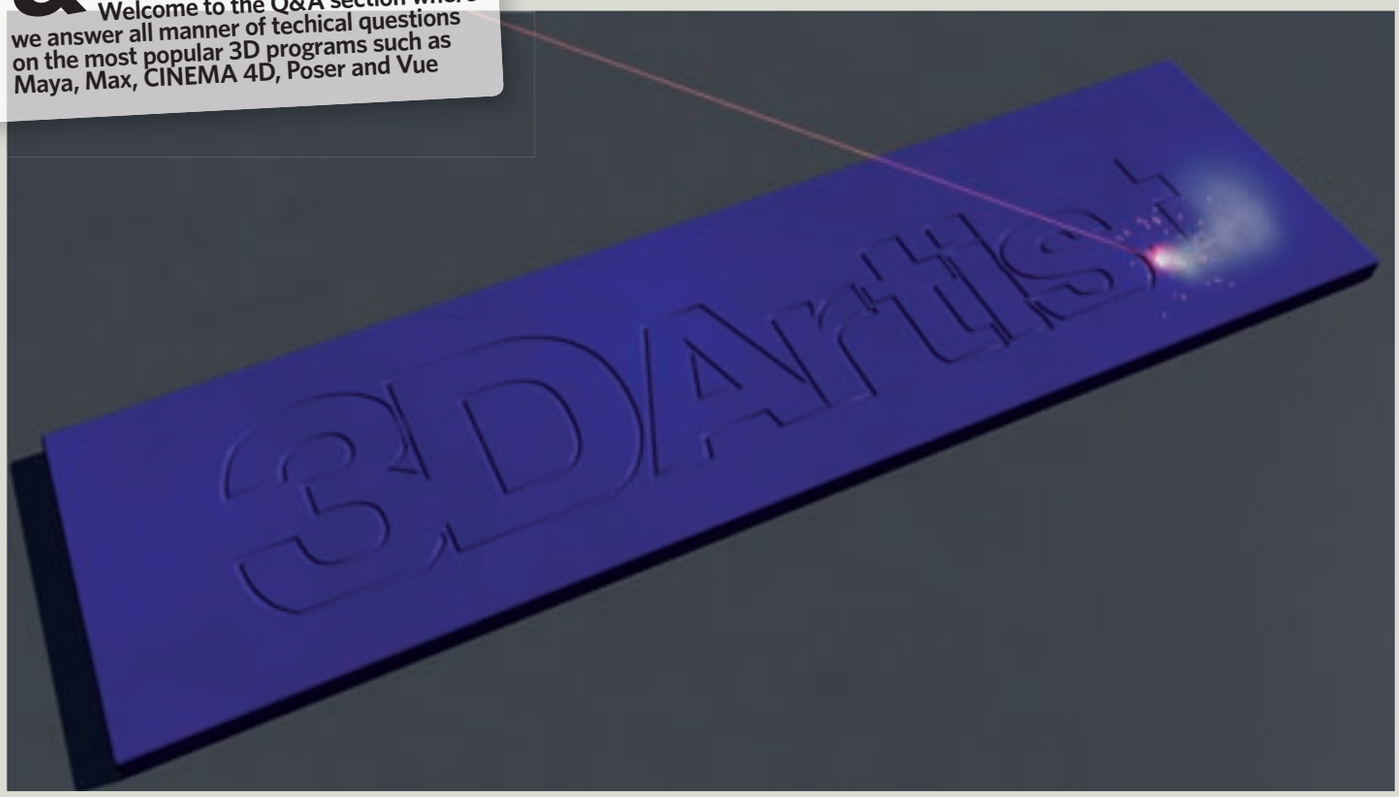

Laser animation

CINEMA 4D

"How do I create an animation of a laser beam cutting a surface – with the smoke, sparks and other effects"

Even though this task could be accomplished in a couple of different ways, we'll stick here with what I find as probably the most elegant solution.

It doesn't involve complicated compositing tricks, pre-filmed footage etc. In spite of that, the final appearance of the solution is fairly convincing and it is a real 3D effect. This means you don't have to worry when you rotate the camera about it in 3D space; also, all the participating elements (laser ray, sparks, smoke...) can even interact with other elements of the scene if needed. For example, with some minor work, the laser ray can be made to reflect when hitting a shiny surface, or to refract when passing through transparent objects. The smoke can bend around objects or can be manipulated in other ways; the sparks can be made to bounce off surfaces they hit. I haven't room to explain all these cases here, but I have no doubt that once you understand the basics, you'll have no problem adding advanced tricks on your own.

The setup is based on CINEMA 4D's particle system and relies heavily on the use of visible lights. The built-in Pyrocluster is necessary – one can get some nice fake animated fire and smoke effects by using only volumetric lights (with the Noise effect on), but in this case they wouldn't give satisfying results. We'll start the scene setup by creating a cut path and then we'll add and animate the laser ray, hit flash (glow), spark cloud and smoke effects. The laser ray will consist of a very long and thin visible spotlight and will be animated in such a way that its tip follows the cut path during the animation. Another visible light will be used for the hit glow. Next we will create two particle emitters that will follow the cut path as well. One of them will emit tiny, short-lived volumetric lights (the sparks) while the other one is going to be used together with the Pyrocluster to create the animated smoke. It is required that you are familiar with at least the basics of keyframe and spline-follow animation in CINEMA 4D in order to complete the final step.

01 Creating the cut path

Scan or photograph the shape that you want the laser ray to cut. In this example I'll use the logo of a well-known (and very informative) 3D CG art magazine. Go to your top view and set the image as background (Viewport Menu> Edit> Configure> Back> Image). Then vectorise the logo by using the Bezier spline creation tool (Objects> Create Spline> Bezier) or by modifying the built-in spline primitives.

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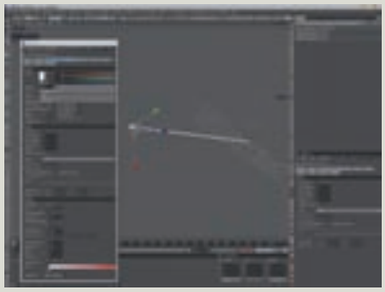
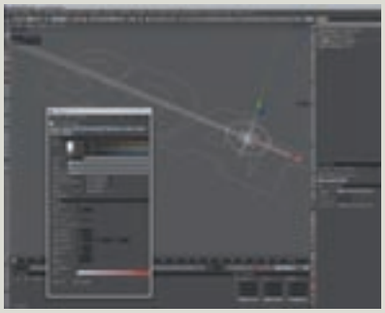


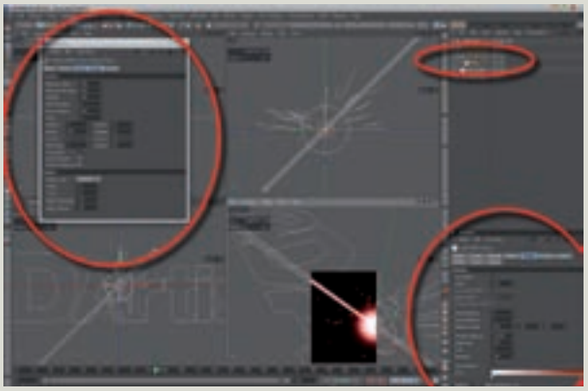
02 Creating the laser ray

Add a Target Light to the scene and rename it as 'Laser.ray'. Change the type to Parallel Spot, the Visible option to Volumetric, activate the No Illumination box and deactivate the Specular box. Switch to the Details tab and decrease the Outer Radius to a small value. Switch to the Visibility tab, deactivate the Use Falloff, activate the Coloured Edge Falloff and set the Outer distance to something large. Activate the Use Gradient option and set the gradient from white to a pure red or blue.



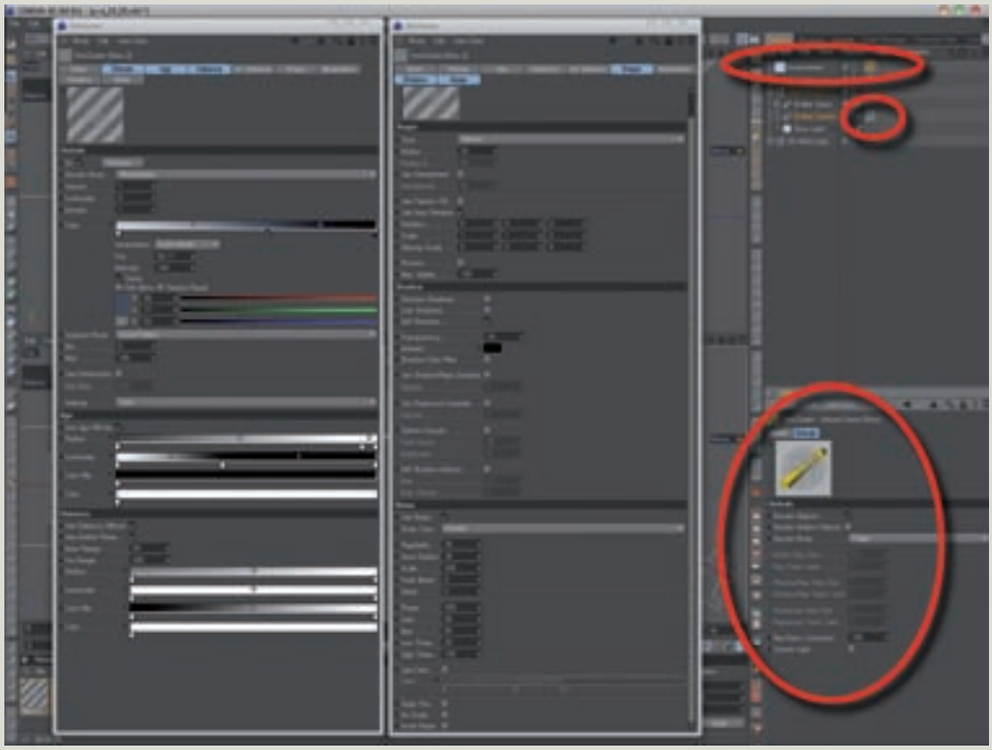
03 Creating the hit point glow

Rename 'Light.target' as 'Laser.Target' and move it temporarily so it is lying on one of the splines (it will be animated later to follow the splines). Duplicate the 'Laser.Light', rename it 'Glow.Light' and make it a child of the 'Laser.Target'. Centre to Parent. Change the type to Omni. Under the Visibility tab, activate Use Falloff, set Inner Distance to tenfold the thickness of the laser ray and Outer Distance to triple the value of the Inner Distance.



04 Creating the sparks

Add a particle emitter and set its Birthrate Renderer to 500, Stop Emission to the length of your animation, Lifetime to 2, Speed to 500 (experiment here, depending on your scene scale!), Lifetime Variation and Speed Variation to 15, End Scale Variation to 80 and activate Tangential. Set type to Pyramid, a small size and both angles to 175°. Duplicate the 'Glow.Light', make it a child of the emitter and change its settings as follows: Outer Distance to around the value of the laser ray thickness and Relative Scale Z to 500.

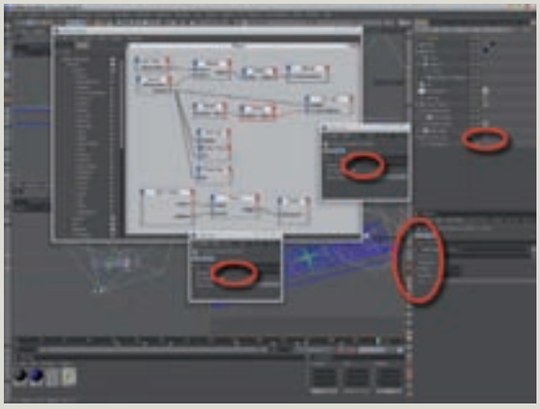


05 Creating the smoke

Duplicate the particle emitter, rename it and change its settings: Birthrate to 150, Lifetime to 20 and Speed to 100 (experiment a bit here again!), Endscale Variation to 15 and deactivate Tangential. Also change both Angle values to 70°. Add Environment object and assign Pyrocluster Volume Shader to it. Add a Pyrocluster shader and assign it to the emitter. The exact Pyrocluster settings are dependent on your scene – you can start with my settings here and then experiment a bit.

06 Animating the setup

Animate the 'Laser.Target' to follow the splines. The laser ray should be turned off while jumping from one spline to another. The 'Glow.Light' should turn on and off in sync with the laser ray. It can also have its visible size and intensity animated so that it changes a bit in a random manner (don't overdo it!). The Speed setting of both particle emitters should change to zero and then back to their respective values in sync with the laser ray turning off and on. Xpresso or Set Driven can be of a great help here.



The final cut

Depending on your project, you may decide to use an animated texture for the purpose (it can be prepared by rendering an animation of the wireframe of the top view and then colouring it in a compositing program). Such a texture could t0hen be used in bump channel or even in displacement channel. Or you might decide to use a completely different approach: to generate a Sweep NURBS object (tube) out of the shape spline, that grows as the animation advances and cuts the surface using a Boole container. Sorry, no space for a detailed explanation here – see the c4d file and animation on the disc for an example of that more accurate and flexible, but more processor- and memory-demanding, approach.

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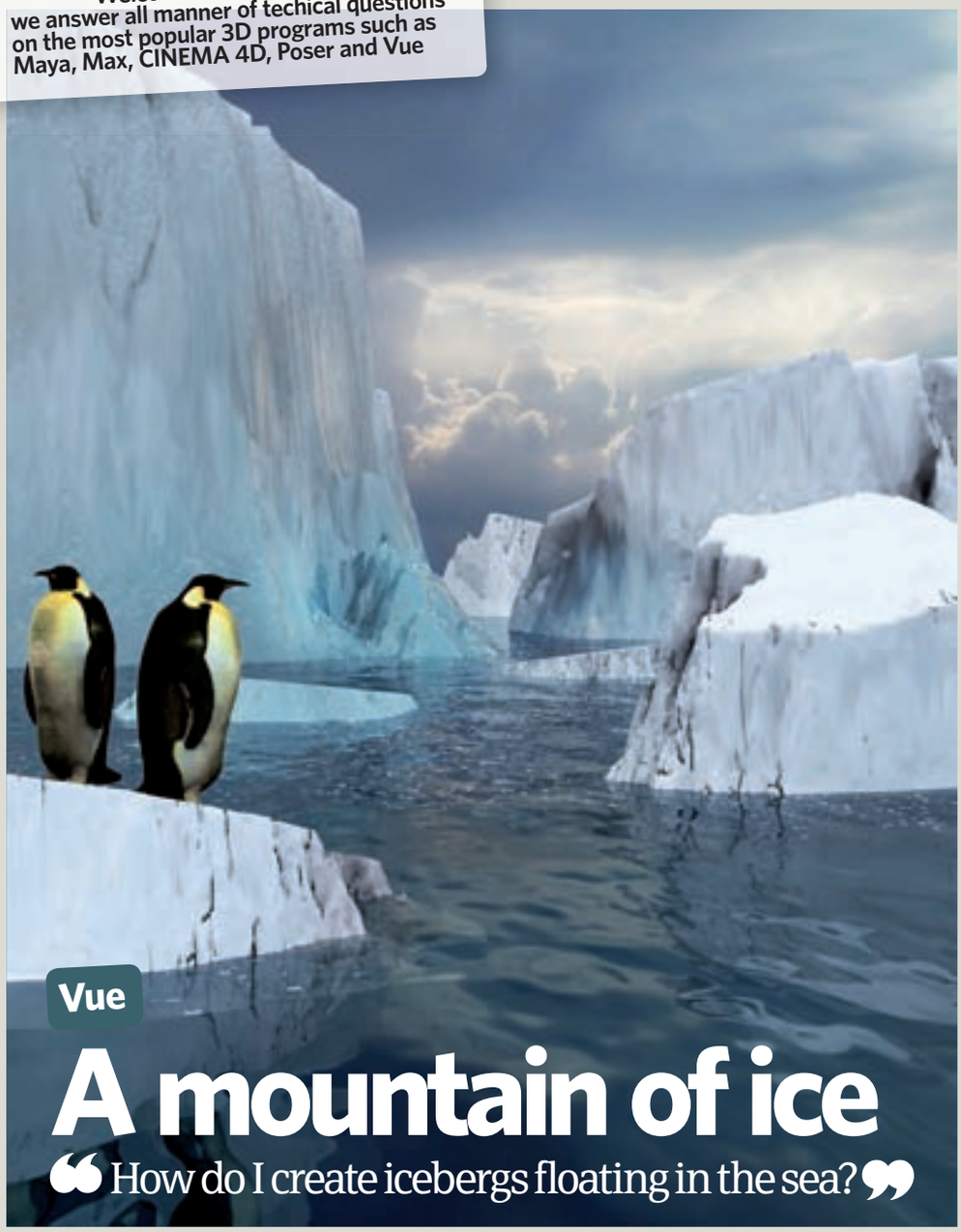


Vue

A mountain of ice

"How do I create icebergs floating in the sea?"

Creating icebergs in Vue is initially relatively straightforward. Just choosing a standard or procedural terrain and then converting it to an iceberg, in the terrain editor, will give adequate results. This is certainly the starting point in at least getting the right shape. But Vue is more powerful than that and there are ways of adding extra detail to the newly created terrain.

Whenever I create a new scene, reference photos – or just using your own eyes in your own surroundings – are vital in accurately showing how objects such as trees, flowers and in this case icebergs look in the real world. This is important, as Vue has an advanced atmosphere editor and can replicate real-world lighting and weather conditions.

The appearance of an iceberg can change dramatically depending on the lighting. For example, a very sunny and brightly lit environment will make some icebergs look like a shiny piece of glass. Icebergs are essentially made up of fresh water, so it will also show parts of the iceberg as almost translucent, especially near the surface of the water; whereas more overcast conditions will show a more uniform white surface. I found Global Radiosity to be the best atmosphere setting. Mixing different materials such as snow, and a transparent blue ice, will give the iceberg a more realistic look.

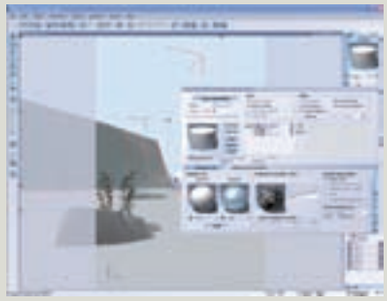
Once the iceberg shape has been selected in the terrain editor, it is there where we can paint over the terrain. There are a number of painting tools to use here and as with most areas of Vue, it is worth experimenting. I found painting cracks in the sides of the iceberg gave a nice result, but also adding wind erosion and glaciation are worth considering. When you have finished painting over the terrain, don't forget to adjust the height and size of each iceberg.

01 Icy Water

First we need to create the water with the smaller fragments of floating ice. Open a new water plane and use a mixture of liquid materials. Choose Tropical Water and Foamy Water. Now in the Materials to mix tab, right-click the Distribution of materials. In the function editor add a noise node, and select Line patterns – Cracks from the drop-down menu. Set the scale to 0.40 and the crack width to around 0.88, or whatever size you want the floating ice to be.

02 Creating The Icebergs

Select a terrain and double-click to enter the terrain editor. Increase the resolution of the terrain and click on Reset. Now choose Iceberg from the list of terrains. Now select Paint and choose Effect in the brush mode. We have a list of effects to choose from that can be painted onto the terrain. Try using Cracks to add extra detail. Click OK when finished and then increase the height and scale of each iceberg in turn.



03 Choosing Materials

When selecting a material for the icebergs, try using a mixture for a more realistic look. For this tutorial, first choose Mossy Rock3 from the rock collection. Now change both materials to Snow and Gloss Coat; the latter will give the lower part of the iceberg a nice blue translucent effect. Increase the Global Transparency of the Gloss Coat material to 46%, and Highlight Global Intensity and Highlight Global Size to max.

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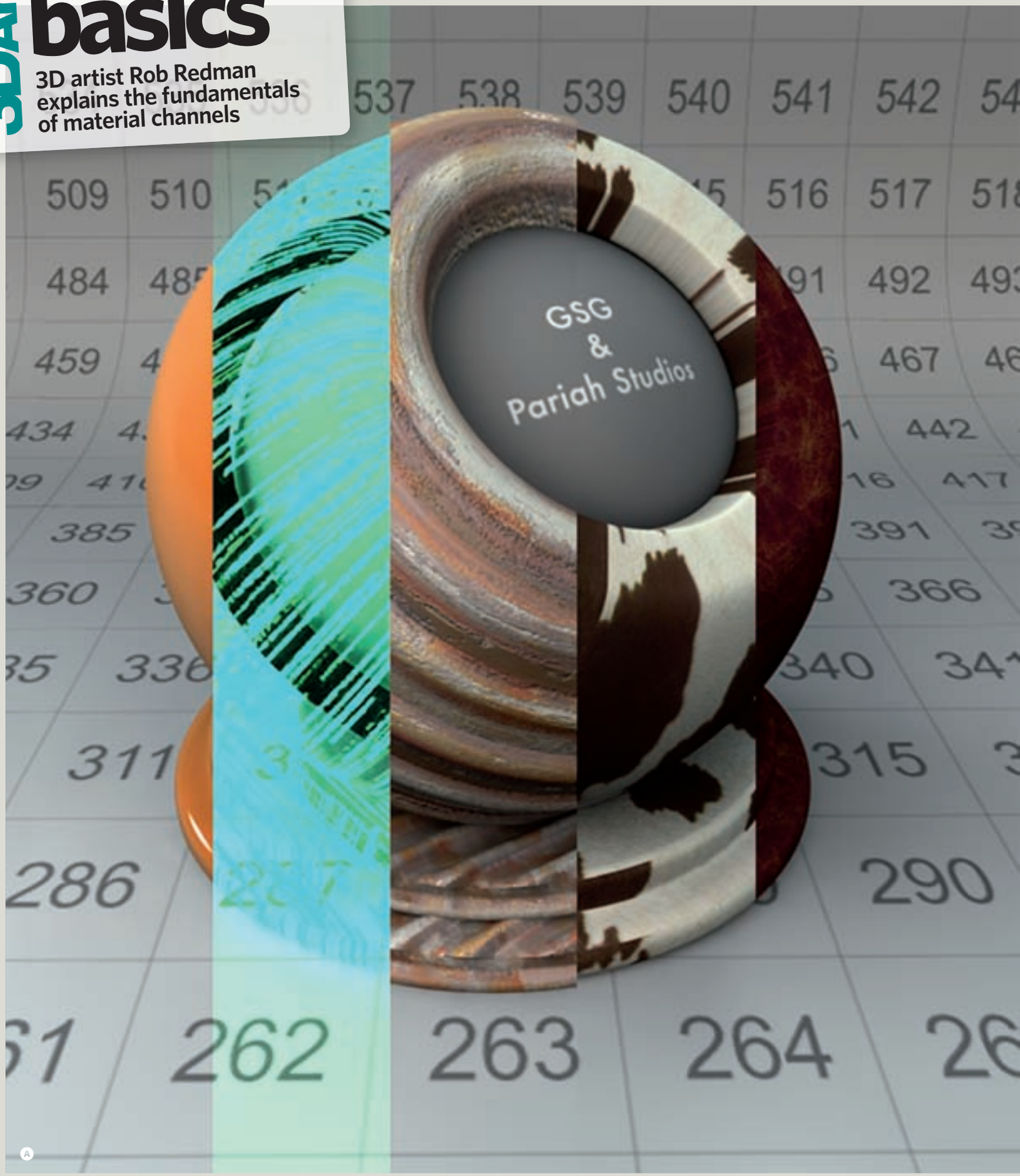
Back to basics

3D artist Rob Redman explains the fundamentals of material channels



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Master material channels

CINEMA 4D

> Getting your materials set up correctly is vital if you wish to create realistic renders. In this article we will discuss the main components of materials, followed by when and where to use them

Materials in the real world are represented in 3D by separating the various components that interact to create the visible results we see. Some are obvious, such as reflectivity and colour, but how do we set them up so that they provide the outputs we expect? In order to do this we need to understand a little about how Cinema 4D breaks down a material into channels which can be manipulated in a variety of ways to give us different effects. Let's break down the available channels that we have to build our materials and explain a little about what they can be used for.

First off is the Colour channel. Here you can choose a flat colour, load a shader, or load in a bitmap image if you have a texture to use.

The next channel is Diffuse, which is commonly used with a noise shader to add some variation to the Colour channel. It also lends itself well to adding a softer, almost dusty look to your material.

Next up we have the Luminance channel. This is where we can add light-emitting properties, for example to make a lamp or TV screen.

Transparency is next. This is where we can build glass, diamond or other transparent materials with colour, refraction and other effects. This is followed by Reflection. Although I'm not going into much detail about what shaders are most useful in each channel, I will say that adding a Fresnel shader here can really work wonders, adding a nice incidence angle falloff to reflections.

Environment and Fog are the next two, but have more limited uses, so we will skip them for now.

Bump and Normal both add fine detail to the material, such as roughness, but they do it in a slightly different way. Both can give great results, with Normal mapping being better but not as simple to set up.

The Alpha channel's often used to create holes in your material or to create decals. Great for beer bottle labels or gobos.

Specular simulates the bright highlights that you see, most obviously, on shiny materials and works in two modes: plastic or metal.

The following channel lets you add a texture to the specular highlight, which can help with realism.

Glow does exactly what you expect. It adds a glow to any mix of the inner and outer parts of you material. The difference between this and Luminance is that Glow doesn't light other objects.

Displacement is a very useful and versatile channel and lets you add geometry to your object (unlike Bump/Normal) for things such as rocks or even carpets. You add a greyscale texture to the channel and it calculates the geometry using black as the deepest point and white as the highest. You can use painted maps or built-in shaders and although results are great, it can take a while to render, especially if used with Global Illumination.

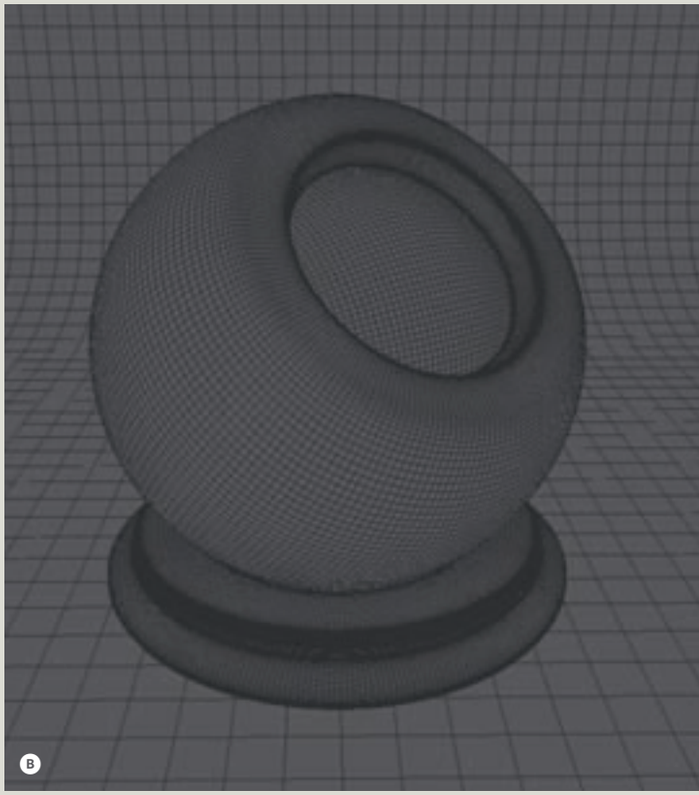
We've now looked at what's available, but we need to know how to use these channels to build our materials. We'll take a quick look at some of the shaders and how they can help; then, over the page, we will build a material or two, step by step.

Without painting or photographing textures, there are a couple of very handy built-in shaders; Fresnel and noise. Fresnel (pronounced fre'nell), as I said earlier, works by using a gradient to apply a falloff with colour A facing the camera and B at 90°. Many real-world materials have this attribute, so keep it in mind for the colour as well as the Reflection channel. It's great for pearlescent car paint.

The noise shader has many uses, from colours for rock, to bump maps. It's really a collection of different noise types and there are controls for contrast, scale and colour among others. It's worth experimenting with, as the results can be very varied.

Once you get used to building materials, try layering them. There are a few ways to do this, but the easiest is to create a base material – car paint, for example – and then a second: maybe mud or decals. Apply them both to your object and give the mud/decal material an alpha. White areas of the alpha will let the paint shine through.

It also makes sense to build your materials in a standardised scene, so you know they will react predictably in any situation. I've included the one I made, which we will use in the step-by-step section. It is lit by lights, HDRIs and luminous materials, with GI turned on. You can find the scene file on the disc.



B

C

A A standardised material creation scene can be a very useful tool

B Here's the basic mesh, what happens next defines the look

C Adding textures to the wireframe. Which material channel you use affects the look

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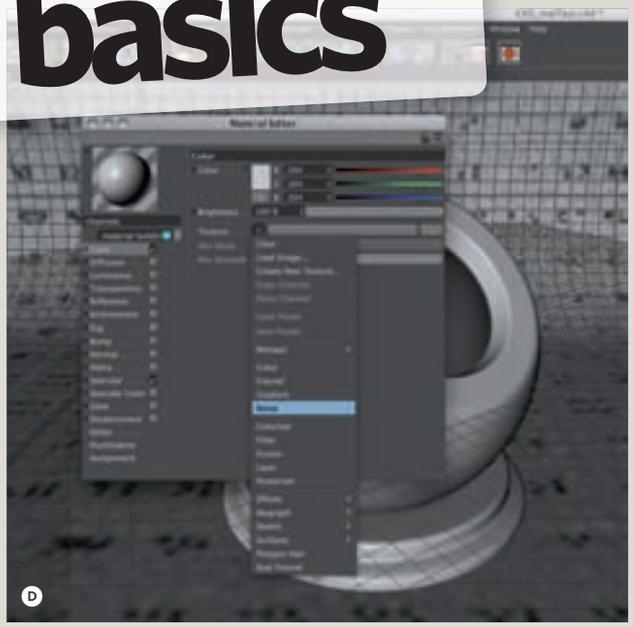
3DArtist Back to basics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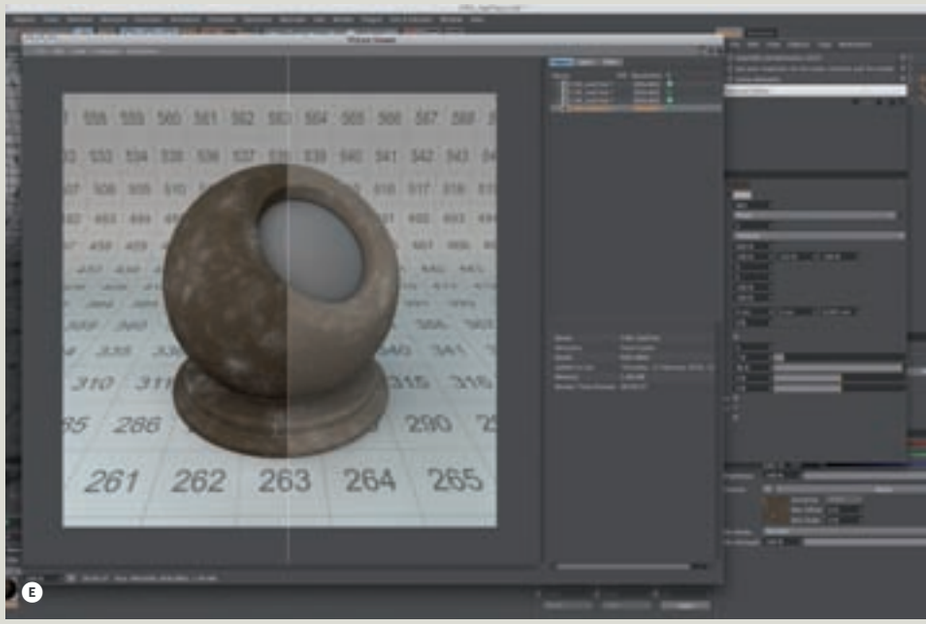
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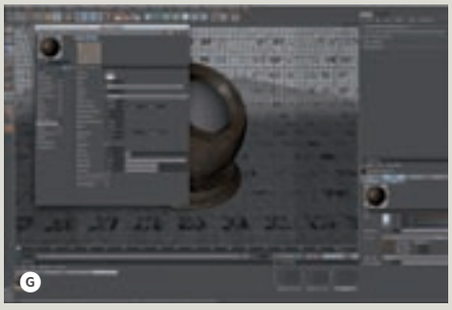
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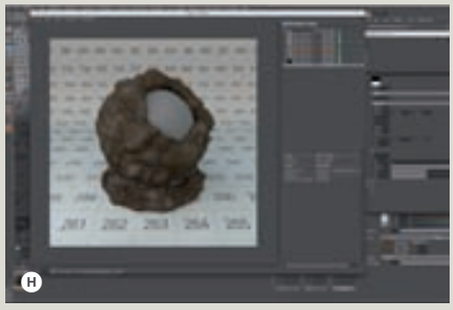
H

Material channels in practice

01 Building materials

Open the scene file and have a look to familiarise yourself with it. In the material manager you will see two layers. Ignore the scene materials layer, as this just houses the HDRI and other odds and ends. In the material building layer you will find a blank material called 'Channel tutorial'. Double-click this to open up the material editor. We will go through the steps to build a nice rocky material, using just the tools available and no painted textures. In the Colour channel, choose a noise shader then click the noise button to open its options D.

02 Add some noise

The Noise drop-down shows the different noise types, or the little arrow to the side shows a visual catalogue, if you aren't used to the names yet. Choose a Poxo noise and give it the settings you see. Choose any colours you like, but these are a good starting point. Do a quick test render to see if you're happy with the results. Make any changes until you are satisfied E.

03 Colour settings

We'll add some variations next for more detail. Click the Colour channel and under texture, choose Copy channel. Then check diffusion and paste the channel. I adjusted the colours to a slightly redder tone and reduced the global scale to around 80%. I left the mix mode on normal but reduced the mix strength to 10% to let the Colour channel show through. You can see some of my other settings below. Experiment with the settings until you arrive at something you are happy with F.

04 Specular highlights

Now we will skip down to Specular and add some highlights. Start by clicking the Specular channel and give it a width of 42, height of 59 and falloff of 8. Leave inner width at 0. Then copy and paste the Colour channel into the Specular Colour channel. Open up the noise and make the two colours lighter versions. Specular Colour works well by increasing the brightness of the main colours, instead of having a harsh white highlight. Time to save and do another test to check our progress. Not too obvious now, but wait until we have displacement G.

05 Roughen it up

Now is a good time to add some roughness, so check the Displacement channel and add a noise shader. You get very different results from the types of noise, but I find Naki and Stupl are good for rocks. Go back to the main Displacement section and set the height at around 12cm. I also checked Sub-Poly, with two subdivision levels and rounded geometry. This helps the noise look a little more natural. If renders take too long, turn off sub-poly until you are happy with the

Variations and imperfections

It's often worth adding some subtle imperfections to add some realism, even to a clean new material. A good way is to add some small-scale noise to the Diffuse channel or the Bump channel. Even if it isn't obvious, it can help to sell the effect. You can create a similar look with a second material using an alpha. Or by using a layer shader and combining noise with the main layer using Photoshop-style blending modes. Work in whichever way suits you best.

D Adding a shader via the texture button

E Use the picture viewer's 'A/B compare' to see more easily whether you like your changes

F Diffusion settings for a little variation

G Use the Specular Colour channel to influence the appearance of the material's shine

H Still some work to do, but getting close

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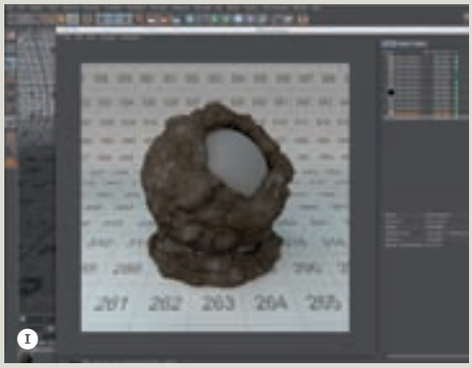
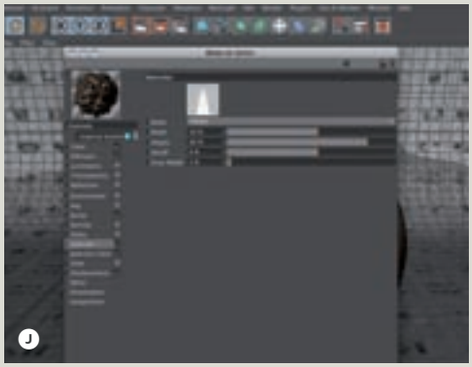
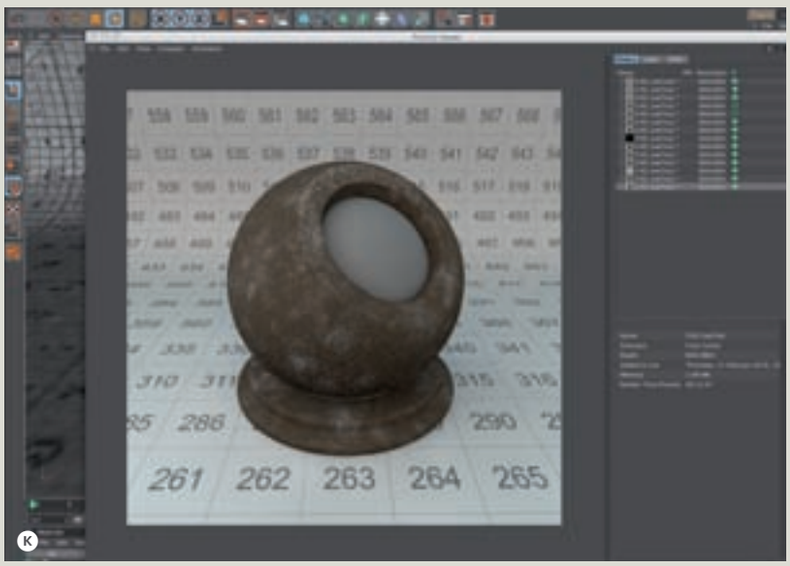
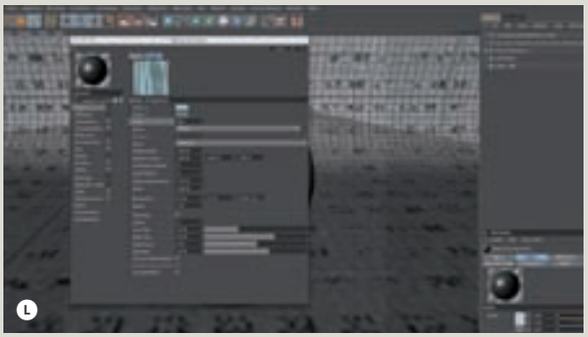


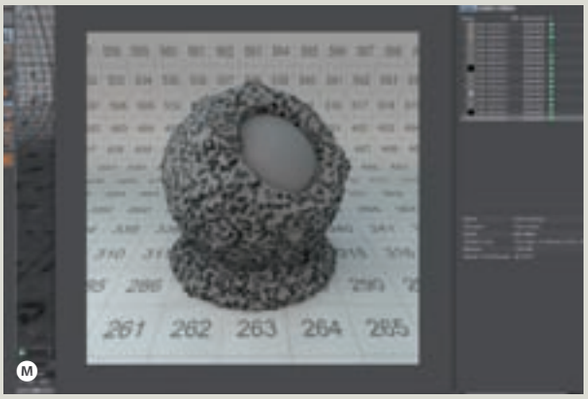


Incremental saving

We all know that saving our work regularly is important, but what happens if you want to go back to something you had when you saved an hour ago? Or longer? This is where incremental saving can be a life saver. Instead of just hitting Save, hit Save Incremental. This will save your file to the same location on your hard drive with a suffix, 0001. This will go up a number each time you save, so 0002, 0003 etc. This makes organisation easy and should you decide that a previous version was better, you have it easily accessible.







overall look. All I changed in the noise settings was the global scale, to 300%, but try drastic scale changes as you can find some great looks H.

06 Using Bump channel noise for more roughness

We now have larger-scale details, but we still lack the overall roughness of the surface. Check the Bump channel and load up a noise shader. This time I chose Turbulence – but, as always, try a few and choose one that you feel comfortable with. I actually swapped the black and white on mine, so that it was a pitted surface rather than a bumpy one I.

07 Making the specular colours paler

I decided to go back at this point and change the specular colours to something a little paler and to increase the specular height and width to something more suitable. You will often find that you jump back and forth between channels as you work on a material. This isn't bad, but you will do it less and less, the more familiar you become with all the options and how they affect each other J.

08 Time for reflection

You may not think of rocks as being reflective, but in actual fact pretty much everything is. Reflectivity is a term that's used a lot, but is often mistaken for shininess or glossiness. If something was totally non-reflective, you wouldn't be able to see it. But in the case of the Reflectivity channel, we will take it as more of a glossiness. We don't want our rock to be like a mirror, but a very small amount of Fresnel reflection will look great, so add a Fresnel shader. Make the main reflection brightness around 1.2% and the Fresnel mix strength about 3. Then adjust the blur strength to around 14% K.

09 Colour noise

The Colour channel still needs something, so click on the Texture drop-down and choose Layer, then open it up. You can see a few options, such as image, shader, etc. Choose shader and add another noise. Double-click the new noise and adjust the settings how you see fit. I opted for a grey/blue look and scaled to 600 in the Y axis. Click back to the layer options and choose a blending mode from the drop-downs. You can experiment here, but I chose Difference, with an opacity of 32%, which I found to be a good mix of the two noise shaders. For more complex materials you can add layer after layer until you get what you need. This applies to all channels, not just Colour L.

10 Cool alpha effect

This part isn't needed, but can be fun. Check Alpha and add a noise. Leave it at black and white, with contrast at or near 100%. You may want to change the scale to 200%. Hit render. The white areas of the noise (or painted texture) will be opaque while the black will disappear. This is a cool effect and while you may not want to use it to create rocks, it's very useful for applying decals and similar functions. I'll go into more details about this in future articles M.

I This shows the pitted surface made with the Bump channel

J Adjusted specular values to better suit the material

K The reflections added without displacement

L Here are the settings for the second noise shader in the Colour channel

M A quick look at using alphas to control where materials appear

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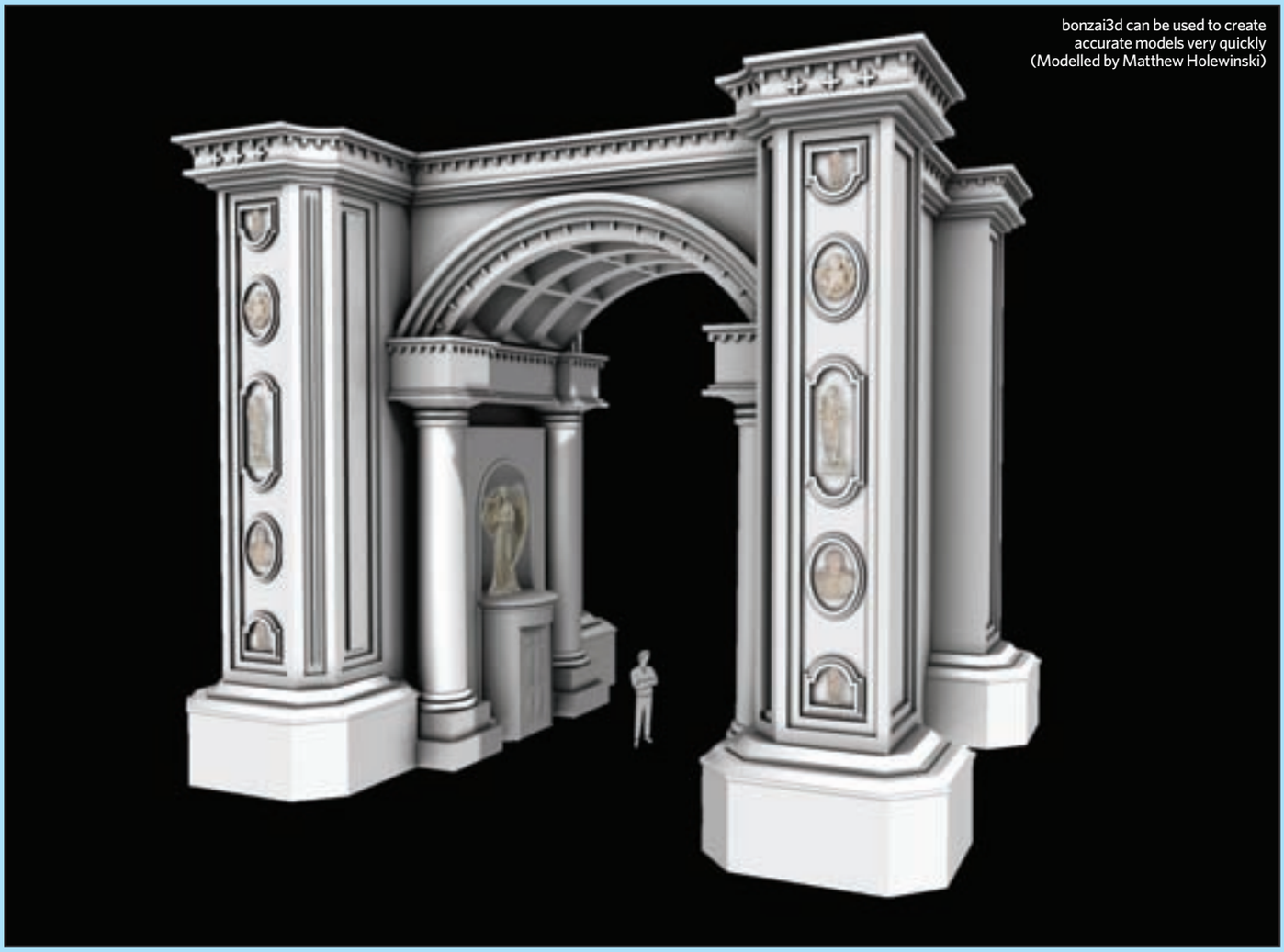

bonzai3d can be used to create accurate models very quickly (Modelled by Matthew Holewinski)

bonzai3d £398/$499

A good package for rapid modelling and designs requiring accurate measurements

Bonzai3d is a modelling package created by AutoDesSys – the maker of the popular CAD package, formZ. This isn't a version of formZ by any means, but it does share some workflows and tools, so if you're familiar with one product, you shouldn't have any trouble adapting to the other.

Designed for rapid modelling, the bonzai3d package uses a similar approach to Google Sketchup (although it's substantially more sophisticated), allowing you to create 3D models by essentially drawing in 2D and then extruding or lathing to turn them into 3D. The emphasis of the workflow is very firmly on tools for users familiar with designing flat objects, and on making 3D accessible.

Editing objects is very easy. Rather than dealing with individual polygons, you work with shapes, faces and curves which can be edited and refined at any time through a simple click-and-drag interface. It isn't the most adaptable modeller on the market and although it's very fast and there are very simple ways to add detail, bevel and extrude, this is no substitute for a really good subdivision surfaces or sculpting tool.

Like Sketchup, bonzai3d can be used for all kinds of 3D modelling, but it really excels in creating very fast architectural designs. The package even includes a set of pre-loaded components – low poly objects like people, trees and furniture which can be dropped into your scenes to instantly give them colour and scale.

Version 2 of the bonzai3d package makes it a whole lot easier to isolate and work on individual objects within complex models, thanks to 3D clipping planes. These can be turned on and off at will so that you can see and work with objects inside your model easily (for example, moving the furniture around a building).

For those looking for a more organic approach to modelling, NURBS curves and surface tools have been refined with the addition of six new tools for merging and blending curves and surfaces. This makes it easier to create complex curves, but bonzai3d still focuses most of its attention on the hard lines and straight edges of architectural modelling. Working with NURBS curves is precise and clean, but isn't as intuitive as (say) 3D sculpting.

There's also a new walkthrough tool allowing you to tour your scene using the mouse and keyboard. There's even collision

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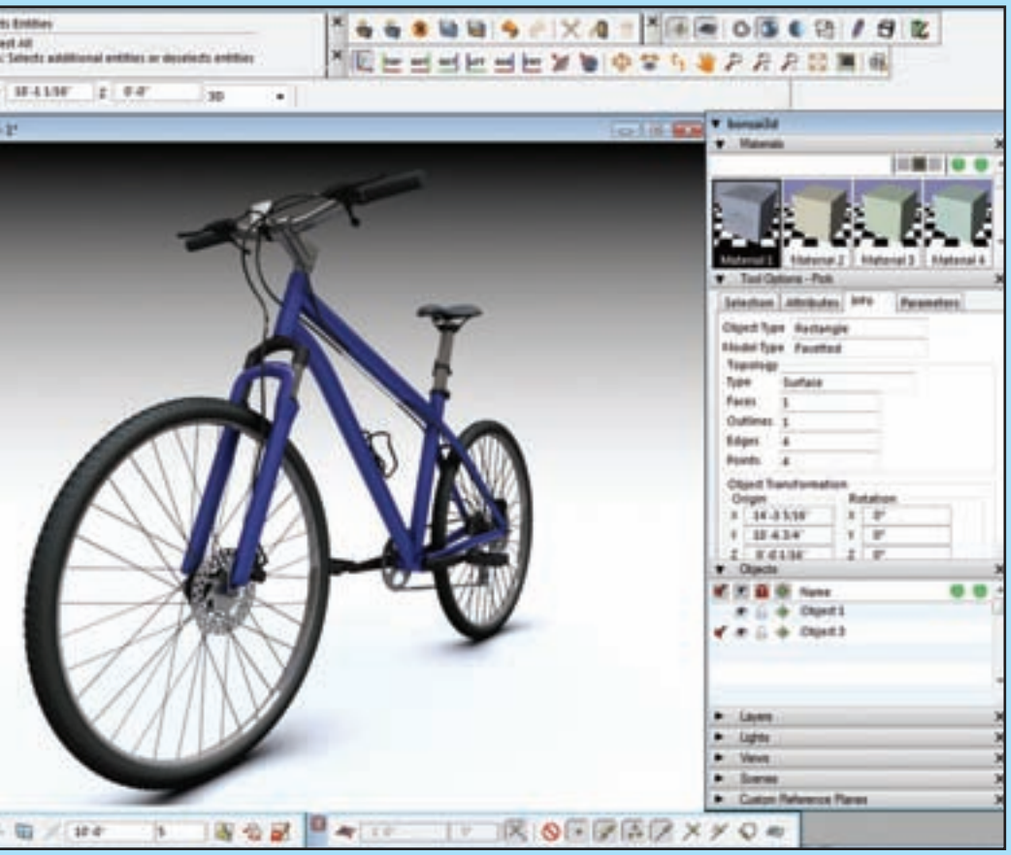


The good & the bad

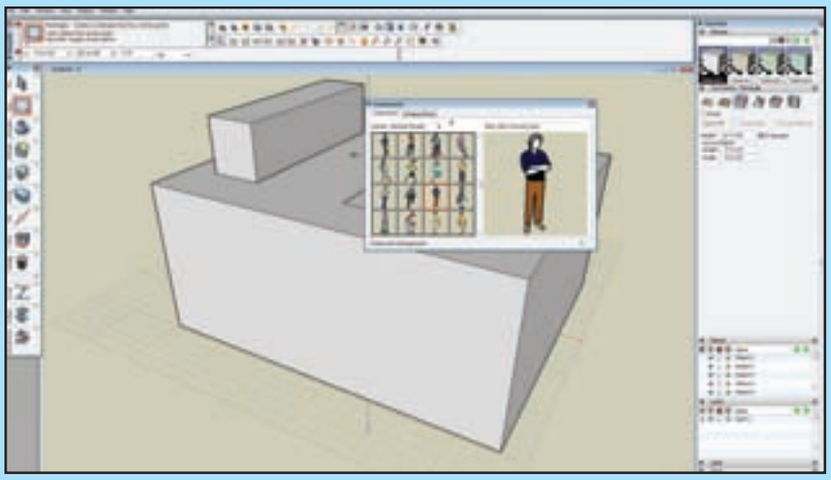
- ✓ Very quick modelling tools
- ✓ Easy learning curve
- ✓ Can include accurate model dimension details
- ✓ Watermarked version of RenderZone included
- ✗ Expensive
- ✗ Limited range of tools
- ✗ Full version of renderer isn't included

Essential info

www.bonzai3d.com
- $499/£339+VAT

OPERATING SYSTEMS
- Windows Vista, XP, Windows 7
- Mac OS X

OPTIMAL SYSTEM REQUIREMENTS (PC)
- 512MB RAM
- 500MB disk space



The components browser provides instant access to a huge range of low poly models to add to your scene

New curves tools allow complex shapes to be modelled

detection so that you don't accidentally move through solid objects. Sadly, however, it isn't possible to output the results of a walkthrough as an animation.

Version 2 introduces RenderZone to the package – not strictly a part of bonzai3d but a separate renderer (compatible with that used in formZ). You have to pay $399 extra for the full version of RenderZone, but you do get a watermarked version with bonzai3d.

RenderZone isn't at all bad, offering global illumination, ambient occlusion and radiosity as well as sketch rendering for a hand-drawn look, texture baking for faster rendering of shadows, and the ability to render just the area you're working on (in order to speed up preview rendering).

That said, most dedicated artists probably won't be using bonzai3d as their only tool, and will be exporting their models to a different package for lighting and rendering.

All in all, bonzai3d is good at what it does. If your work requires you to combine quick modelling with accurate measurements (you can include dimension details of all kinds in your models, for use in scale drawings and CAD work), it will speed up your workflow no end. If your artwork is more free-form then you're probably better off looking elsewhere for a modelling tool.

Our verdict

Features	6/10
Ease of use	8/10
Quality of results	7/10
Value for money	6/10

> "You can create models at lightning speed, but it's aimed more at architects than artists"

Final Score 7/10

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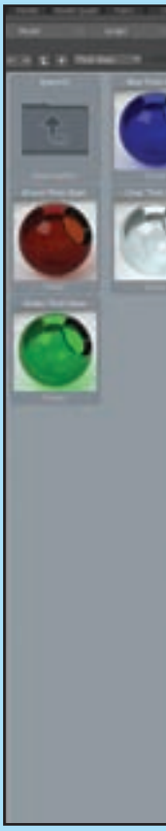
Creating a high-quality image with SLIK is as simple as choosing a studio setup and hitting render



Studio Lighting and Illumination Kit (SLIK) for modo $125

A set of tools to set up quick and easy studio lighting for modo scenes

Lighting is something that 3D artists often don't get to spend enough time on. All the effort goes into modelling, texturing and arranging your scene, and the tweaking of lights to get the best looking final render is so time-consuming as you render test after test that it often gets cut short.

SLIK is simply a set of presets for quickly putting together studio lighting for your 3D models. The idea is to set up a lighting studio within modo which looks, feels and works in just the same way as a real photography studio. All you have to do is import your models, load a preset and hit render.

To that end, SLIK includes a set of simulations for lights, backdrops, reflectors and pantographs which can be dropped into your scenes and arranged very quickly to create controllable, realistic setups.

Most artists will probably have created something similar themselves – quick and easy lighting setups that can just be loaded in, whenever they're needed. However, SLIK goes much, much further than any CGI artist is likely to have done in setting up a virtual studio.

For example, When you place a light in a scene, SLIK doesn't just add the light. It also adds realistic characteristics for its bulb, barn doors which can be opened or closed to shade the light, and targeting so you can point it wherever you like.

But it goes further still. The kit also adds geometry for the light's tripod (or a ceiling rig), textures for the creases in reflectors, and the walls of the studio. Why? Because these things all have a subtle effect on shadows, reflections and bounced light, making the whole render more realistic.

modo's interface really lends itself to SLIK. All you need to do in order to add a light, a reflector or a full studio setup is to click on the required item. And of course, you can edit the various aspects of all your lights simply by

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The good & the bad

- ✓ Quick to set up
- ✓ Very detailed studio lighting equipment
- ✓ Robust system which can be used for most models
- ✗ Only three different types of light
- ✗ Simplified options for fast rendering would be useful
- ✗ Only works with modo

Essential info

www.luxology.com/store/slik

- $125

OPERATING SYSTEMS

- Windows XP, Vista
- Mac OS X 10.4 or greater

OPTIMAL SYSTEM REQUIREMENTS (PC)

- Win dows XP / Vista (32- and 64-bit)
- 2GB RAM
- OpenGL accelerated graphics card capable of at least 1024x768 resolution
- Pentium 4 processor or better

OPTIMAL SYSTEM REQUIREMENTS (MAC)

- Mac OS X 10.4 or later
- Macintosh G5 or Intel processor
- 2GB RAM
- OpenGL accelerated graphics card capable of at least 1024x768 resolution

Each object has detailed geometry which will affect reflections and shadows, even if it's not directly in shot

SLIK offers a range of preset studios at different scales into which you can import any model – you just have to hit render

Each object comes rigged with a set of easy-to-use controls to adjust and position it exactly how you want

selecting them just like any other object in your scene.

All the presets are well organised and instantly usable. Controls are convenient and everything works as you'd expect it to. When you pull a light down from the ceiling or move it around, the rig it's attached to moves automatically with it, and you don't have to take any notice of it. Controls attached to each object bring up sliders to allow you to (for example) open and close the barn doors to let more or less light through, raise or lower the tripod, add or remove lens flare, or change the colour of a reflector.

All the lights, backgrounds and reflectors are offered as single objects which you can drop into a scene. But if you don't want to mess around setting things up for yourself, you can also use pre-made studios in which everything is arranged for you so all you need to do is add your 3D models.

There are four different basic studio setups: small (about the right scale for jewellery), medium (about right for furniture), large (roughly the scale of a car) and portrait (for rendering characters). Each studio has a range of different lighting setups for different looks. These all work well right out of the box, but of course you can adjust and tweak them to create your own studio setups if you need to.

You can even add caustic lights with a single click.

Once you've set up your studio, you can also tell SLIK to render out a spherical HDRI map for use in image-based lighting – and of course, that will contain all the complexities of the lighting rig and studio.

All in all, the level of detail is a bit OTT for most users, but who cares? The results are good almost all the time, without adjustment – whatever your model – and you can always customise if you need to.

Our verdict

Features	7/10
Ease of use	8/10
Quality of results	8/10
Value for money	8/10

> "Even if it saves you a single day's tinkering in a year, SLIK is worth it"

Final Score 8/10

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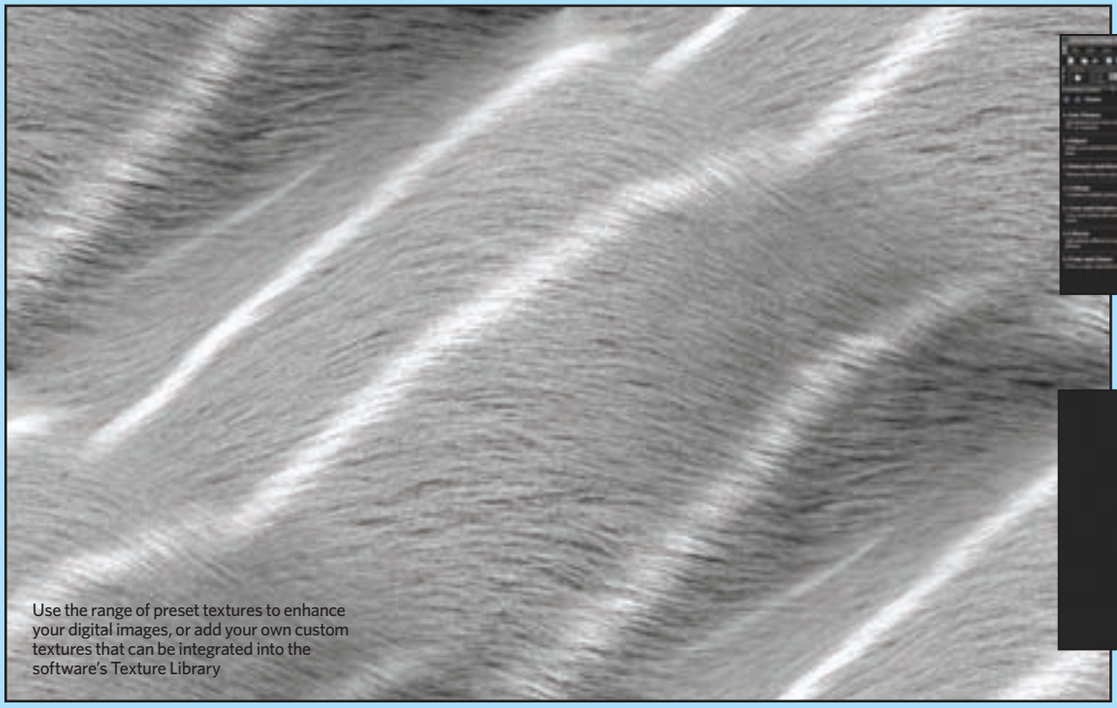
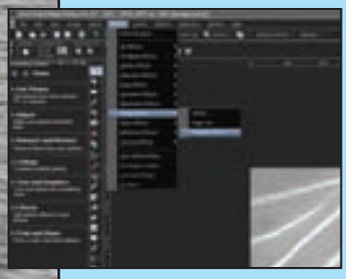
Corel Paint Shop Photo Pro X3 £79

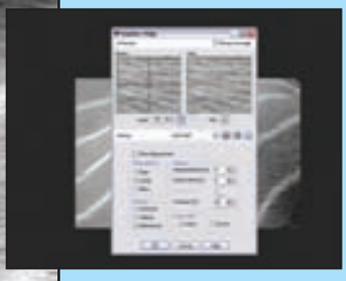
Do you really need to pay a fortune for Adobe Photoshop when there are affordable alternatives?



Use the range of preset textures to enhance your digital images, or add your own custom textures that can be integrated into the software's Texture Library



You can choose from a range of 3D Texture presets to apply to your digital images



Create your own custom textures from digital photographs

Everyone uses Photoshop for comping render layers, tweaking the colours, messing about with depth of field etc, but it isn't cheap. PSPP offers similar features, but at a far lower price. The question is whether it's good enough to do that job for you, especially since CS5 is going to have a lot of 3D functionality built in.

If you use digital Raw files for source images in your work, RAW Lab is the place to process them – you can apply the same changes to multiple files shot under similar conditions. This also comes in handy when editing JPEGs, using the Organizer's Capture Editing and Apply Editing functionality – handy for preparing large volumes of files to use in your 3D work with minimum effort.

The software includes a number of preset textures. Each of these can be edited, with customisable options including the Smoothness, Depth, Ambience and Shininess, as well as the colour, angle, Intensity and Elevation of the light illuminating it. The results can be realistic, and the amount of control you have over each element that makes up your 3D texture means you can integrate it seamlessly into your work. You can also create your own textures from scratch: simply start with your digital photo of choice, use the Channel Mixer to convert it monochrome, and use the Seamless Tiling feature to produce your custom texture using all, or just a portion of your source image. The Seamless Tiling dialog box has plenty of user-definable options to help you produce your own unique result, and these can be saved directly into the software's Texture Library for quick access at a later date.

Working with Blending modes, individual layers and a range of sophisticated editing tools, you can build up a small amount of source material for your 3D projects using this software. The 3D Effects menu provides some material to get you started, with a range of different effects that can be applied to shapes and text, which can then be combined with the previously mentioned textures to create some basic 3D objects. Be warned though: if your computer meets the minimum system requirements, but you don't have the hardware to take advantage of the software's enhanced performance measures then your workflow may suffer, as larger files take a long time to be rendered.

Those looking for a cheaper alternative to Photoshop should be reminded that you get what you pay for. Yes, there are some basic tools, but – as you'd expect for the price – a lot of the functionality for 3D work that you get with Adobe's top-end package is missing from Paint Shop Pro Photo X3. It's useful for texture creation and compositing layers which are Photoshop compatible though.

> "You can build up a small amount of source material for your 3D projects using this software"

www.corel.com

Our verdict

Features	5/10
Ease of use	7/10
Quality of results	7/10
Value for money	6/10

> "Colour correction and Photoshop-layer composition at a bargain price, but not for 3D creation"

Final Score 6/10

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Vidaela Outfit for V4 Free

You don't have to pay through the nose for outfits. In fact you don't have to pay at all...

While DAZ sells some very good quality outfits for the V4 model that can be rendered in Studio or Poser, for those on a budget there are even cheaper options available. Over at Renderosity (**www.renderosity.com**) vendors routinely give away outfits for promotional purposes.

A recent one was the Vidaela Outfit for V4 by FreeFashion, which we've decided to take a look at here. This is a conforming top and short skirt with three textures each. It works for A4/G4/V4 models and also comes with a pair of shoes that are specific to V4. There are two textures and two foot poses for the shoes. One of the textures is a white and floral combination, the others are black and a rustic finish.

The outfit comes with posing handles that can be turned off. We tested this in Studio and found that the default materials for the Spring texture were far too glossy, so it looked like plastic – but it was easy to tone down. What's really impressive is that there are a large number of deformers for the top and skirt to enable it to fit most body variations. There are specific ones like Aiko, but you can also go to each sub-area of the outfit and use fine-tuning deformers there.

This is all good, but the shoes were a different story. The clothes have a fit-to option but the shoes don't. These worked best with Poser because in Studio it was very fiddly to get them to fit properly. Even as a freebie you'll probably give up on those.

The quality of the outfit is quite decent, but be prepared to do some tweaking. So, not bad overall and worth your time downloading.

www.renderosity.com

Our verdict

Features	7/10
Ease of use	6/10
Quality of results	6/10
Value for money	8/10

"Shoes aside, an easy-to-use outfit with an interesting variation of textures"

Final Score 7/10

Vue 8.4 Free update

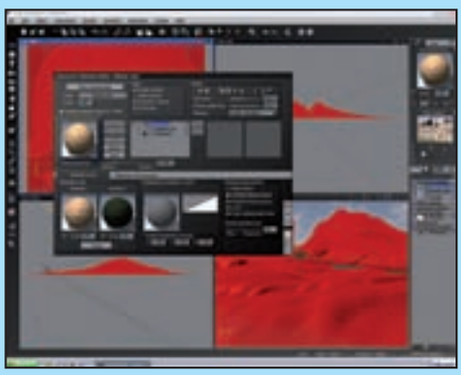
Free upgrade for Vue 8.1 users applies lots of sticking plasters

With Vue 8.1, e-on Software upped the game in terms of what is possible with landscape-generation software. Trouble was there were a few holes, especially in terms of memory and asset management, which is what this service update is here to correct.

Not quite a feature update that might have made it v8.5, it shows the level of fixing that this is still v8.4. Let's go through the fixing side first. There's faster, higher quality previewing in OpenGL, automatic resizing of render buckets, faster handling of complicated groups, and the default views are automatically resized according to the scale used. The EcoSystem display has been improved so it's more accurate and flickers less when moving around. There's improved displacement mapping so displaced materials on non-procedural terrains are used more efficiently, and as a result the scene will render faster. Renders in general are more efficient and slightly quicker.

But it isn't all just bug-fixing. There's the new multi-material, which means all the materials of any object or surface can be changed at once. The material combinations can be saved to use again, and can be drag-dropped on other objects. There's a Motion Browser for those interested in animation that lets individual objects be selected/previewed. There are also new units, so nodes express object dimension in real-world measurements rather than abstract terms. What still hasn't been fixed is that the preview windows can still wander back and forth between wireframe and solid views.

So, not an upgrade to make you buy the program, but a free and essential update for v8.1 users.



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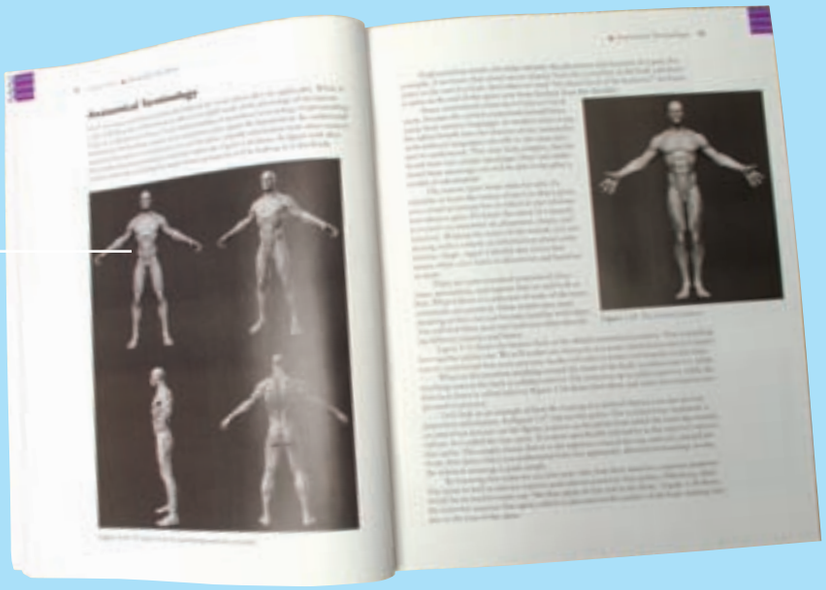
www.e-onsoftware.com

Our verdict

Features	8/10
Ease of use	8/10
Quality of results	8/10
Value for money	8/10

"Fixes a number of bugs and increases memory management and rendering time"

Final Score 8/10



ANATOMY
The key focus of this book is on male anatomy and how to sculpt it in ZBrush

ZBrush Digital Sculpting: Human Anatomy $59.99

Advanced digital sculpting skills with ZBrush

info

AUTHORS
- Scott Spencer with Eric Keller and Paul Gaboury

PRICE
- $59.99

PUBLISHER
- Sybex

ISBN NUMBER
- 978-0-470-45026-0

This book is not merely another ZBrush how-to. It's an intensely focused extended tutorial on how to get the most from 3D figure creation in ZBrush. And while it has all the information you need on using the tools within ZBrush, its primary focus is on accurate human anatomy and how to create it.

The book kicks off not with some basic wire meshes, but with the human skeleton and musculature. You'll learn the correct medical terminology for bones, muscles and the elements that make up their structure. Moving on, you'll learn about building anatomical structures from basic blocks and overlaying meshes.

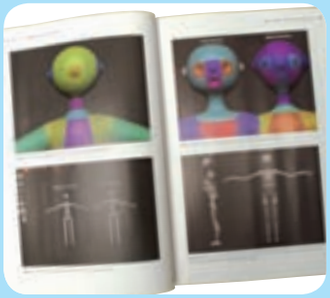
The book then diverts not into more advanced anatomical rendering on static models, but straight into the realm of gestures and how different body structures and the perspective they're shown in will express movement. Basic lighting planes are demonstrated showing how anatomical forms will cast shadows and create highlights that help to flesh out the form more realistically.

The book then takes the major sections of the body in from top to toe. Working downwards, you'll start off with the focal point of most characters – the head and neck. You'll take a detailed look at the skull and at how layers of muscle, cartilage and finally skin build up over it to form the face and head. A step-by-step guide takes you through this process in ZBrush. This is repeated for the torso, arms, hands, pelvis and lower body in a chapter dedicated to each section.

With the figure itself complete, you'll then go on to remeshing – rebuilding the initial sculptural mesh that you created to enable the application of topological features and textures, before creating a costume for the finished character.

This is an incredibly in-depth process, and from start to finish it'll take you quite some time. At the end of it though, you will have a great deal more anatomical knowledge and the skills to represent it using ZBrush.

However, despite its phenomenal level of detail, it won't teach you everything you need to know. Focused solely on male anatomy, it won't be of as much help when you come to creating female or juvenile characters. Having said that, it's an incredibly valuable resource for anyone creating 3D characters, and is the best introduction to anatomy for 3D that we've seen.



BASIC SHAPES
You'll start by learning how to build a basic sculptural mesh from simple shapes

GESTURE AND PERSPECTIVE
Pose, perspective and movement are key parts of how to express accurate anatomy

DETAILS
Major body parts are covered in a step-by-step that walks you through the modelling process

CREATING A COSTUME
Finally, you'll learn to prepare a figure for the application of textures and create a costume

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3D for iPhone Apps $39.99

Shake that moneymaker

This book has two USPs. One, it's about 3D development for Apple's iconic Jesus Phone. Two, it tells you how this is done with open source software. The popularity of the iPhone and iPod touch means everybody who owns one wants games and graphic interfaces to put on the thing, so they'll spend £3 a pop or more on something you put together with free software. As a guide to quick money-making, this is practically genius.

The book starts with an overview of the opportunities and challenges of developing for this platform, then takes a look at the two programs – Blender and SIO2 – and the reasons they're suited to the task. It explains the tools/programming environments you'll need to make use of and how to get the most from them, before moving on to cool stuff like creating objects that users can interact with through the intuitive gestures so beloved by iPhone users.

GAME DEVELOPMENT
The book covers a wide range of games, from simple platformers to more complex 3D modelling

CHARACTERS AND ENVIRONMENTS
Character and environment design is covered, and shown in situ in the final app

ANIMATION
Much of the later part focuses on animation techniques to make your creations come alive

info

AUTHOR
● Tony Mullen

PRICE
● $39.99

PUBLISHER
● Sybex

ISBN NUMBER
● 978-0-470-57492-8

The Art of Avatar £19.99

Inside the making of James Cameron's epic

James Cameron's epic box office smash *Avatar* has become the benchmark by which the quality of all 3D animation will be judged for the next couple of years.

For most fans of the movie, this book of concept art, matte paintings and assorted models is a nice addition to the merchandise collection. For those sobbing with jealous rage and on the verge of tearing up all the rushes of the animation they've been working on for the past two years, this is a good – if brief – insight into some of the processes behind the creation of *Avatar*. Most of the book is given over to lavish shots of characters and scenery, but you will find information on some of the techniques used to bring the world of Pandora to the big screen. You won't find much, but nevertheless this is a very nicely presented title that will certainly be a family favourite.

And you can always tell the kids they can see it in 3D with their eyes crossed.

CONCEPT ART
Get a glimpse of how the world of Pandora and its people were first created

EYE CANDY
The book features plenty of eye candy, such as this immense fold-out of character designs

INSPIRATION
The inspiration behind technology featured in the storyline is discussed in fairly good detail

info

AUTHOR
● Lisa Fitzpatrick

PRICE
● £19.99

PUBLISHER
● Abrams

ISBN NUMBER
● 978-0-810-98286-4

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iPhone
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
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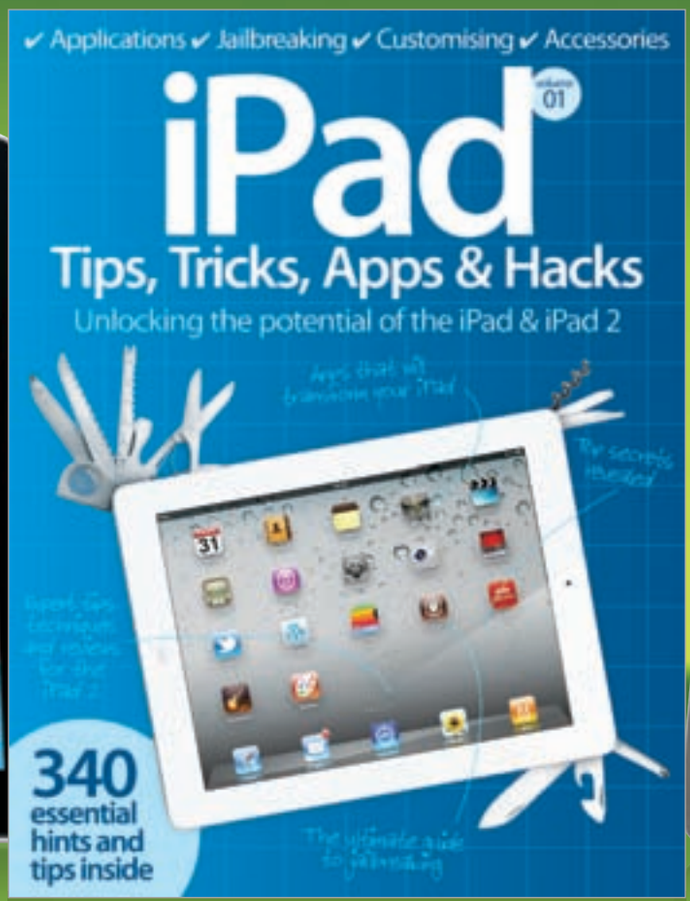
essential hints and tips inside

iPad



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Inside guide to industry news, studios, expert opinion and education

100 Insider interview
Tamir Diab
An awful lot of people worked on *Avatar* and one of them was Tamir Diab, Lighting Technical Director at Weta. In our interview he explains what he did on *Avatar* as well as a host of other high profile projects, and what you can do to get a job in the industry

98 News
Industry news
How Nuke has turned into the hottest compositing commodity on the market thanks to its stereoscopic abilities, Prime Focus torches Marble Arch and Wacom goes wireless. All these stories and more from the 3D industry

102 Uni Focus
Supinfocom, France
Want to learn all about 3D animation, special effects and digital direction? Check out the intensive five-year course from one of France's leading educational facilities. When they've finished it, students leave with essential training and a completed showreel film

106 Studio Access
Black Rock Studios
Joe Palmer of Black Rock Studios explains the role of the technical artist at a games company

inside

> "One of the most important things for a lighter is gaining experience with whatever renderer they are using, be it RenderMan, mental ray or what have you"
>
> **Tamir Diab,** Lighting Technical Director, Weta, on the key skills for anyone working on CGI lighting. Page 100

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Taking over the world of visual effects production

We find out why Nuke is the hottest visual effects compositing program in the industry

A

B

A You can render out the layers for your CGI passes in Nuke, combining them in the compositing stage for more control and to speed up production times

B Steve is now a master trainer, travelling around the world conducting VFX compositing training for major visual effects studios using Shake and Nuke

C You can take a single picture and create a flyover effect using a camera projection technique. You can re-photograph photographic elements as well as composite rendered CGI elements and digital matt paintings

Nuke has become the most powerful new engine in the visual effects production pipeline – in an industry where more work is now being directed from the 3D department to the compositors, speeding up the rate at which it can be produced.

In a recent webinar, Steve Wright – senior compositor, 2D technical director and senior industry veteran in visual effects – answered the big question on everyone's lips: "What's so hot about Nuke?" The broadcast, hosted by the Center for New Media Studies, covered the key factors that contribute to making Nuke the software that digital artists are all currently turning their attention to, in order to future-proof their careers.

Steve reported on how Nuke was originally developed by Digital Domain, created by professionals that know production inside out and who purpose-built it for the VFX pipeline. Always designed to be the back-end of the whole VFX CGI pipeline, it is a modern and powerful engine that can be built upon: whether you want to write your own Python scripts or create and bolt on your own plug-ins, they will all run natively in Nuke. It is 64-bit compliant, making it compatible with all the latest architectural hardware, and with 32-bit float image processing it's extremely fast and efficient with brilliant colour management. And most exciting of all for today's industry, it has built-in 3D compositing and stereo workflow – not bolted on, but all part of its architectural design.

With the digitisation of film and video production suddenly making stereoisation a practical choice, industry professionals are turning to Nuke to join left and right views into a single data stream while they work – the key to compositing in stereo. Without this, digital artists would need to apply settings twice, have two node trees, not to mention two of everything else. Nuke has revolutionised how artists work, providing the option of applying settings to each view individually, or to both at the same time – it's all native to Nuke.

Camera tracking is another key feature behind Nuke that has opened up a whole world of possibilities for VFX production: with the built-in camera tracker you can take the 3D world into the 2D world and integrate them flawlessly. This whole back and forth movement between 2D and 3D is what makes Nuke such a natural fit for artists working with it: in just one compositing script you take a 2D element into 3D, apply it to geometry, give it light, go back to the 2D viewer to do some image processing, and then back in 3D you can render it out. It won't even break a sweat when dealing with millions of polygons or 8K resolutions – it was always designed with the 'big stuff' in mind.

Steve Wright's webinar is available at www.centerfornewmediastudies.com/what-is-so-hot-about-nuke, where you can pick up the full archived version with asset files and podcasts, or get 30 days' access for a reduced price. For his highly regarded VFX training, visit his website at www.vfxio.com.

C

> "[Nuke] is simply the most powerful and highest-quality visual effects compositing system out there"

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Prime Focus helps torch the Marble Arch

Flames and crumbling stone promotes Living TV's Supernatural series

The Marble Arch came to life as it was turned into a ball of flames, eventually crumbling from the top down at the hands of The Brooklyn Brothers agency and Prime Focus, in advertisement of a new paranormal drama.

To get the required effect, a 3D version of the Marble Arch was accurately modelled, textured and lit in Softimage XSI by senior VFX animator at Prime Focus, Adam Seeley, and projected onto London Oxford Street's monument for passers-by to witness. Shadows had to be handled correctly to allow them to fall in the right places on the projected arch, whilst the flames took hold in the bottom right of the stonework, spreading fire up and across before wrecking the 3D version and pulling it forwards in a breathtaking show for the public.

Adam said: "I broke the top of the model up into believable masonry chunks using a script in Maya and applied Rigid Body Dynamics simulations in Softimage. Various areas of the arch were simulated one after the other for a crumbling effect rather than a simultaneous collapse."

Also working on the project for Living TV were Tim Davies and Anne Trotman, who used Flame to choreographed the arch being engulfed in fire using stock footage. Time had to be taken to get the right footage for the effects, ensuring the right size and feel for the task at hand. With the footage all gathered, it could then be passed to John Trussler who combined it with the 3D effects in Smoke, using a depth mask. As a finishing touch, the titles were added and the sequence was made loopable to allow the monument to be reignited repeatedly.

Creative Partner at The Brooklyn Brothers said: "Seeing it engulfed in flames as we drove up Park Lane was absolutely breathtaking, and the moment when the Arch cracked and collapsed was stunning. We have created something really special together."

If you missed the event in London, you can view the footage at www.primefocusworld.com.

D A line-up image taken from the point where the projection would take place was supplied by the Brooklyn Brothers, which allowed Adam to accurately create a 3D version of Marble Arch

> "Various areas of the arch were simulated one after the other for a crumbling effect rather than a simultaneous collapse"

E Reduce your cord clutter and enjoy the freedom of working unattached

Wacom goes wireless

Bluetooth wireless technology frees Wacom's professional pen tablet

Those who seek the freedom of wireless technology but want to keep the control and comfort of Wacom's professional range of graphics tablets will be pleased to learn about the latest in the Intuos 4 range, aimed at digital content creators such as designers and artists. Benefiting from Bluetooth technology and breakthrough design, users of the new Intuos 4 Wireless will be able to charge their tablets directly through their computers or USB – and, with the ability to move up to 10 metres wirelessly, can draw, edit, paint, retouch or attend to general work with complete flexibility and freedom.

To find out more about this new addition to the Intuos 4 family, go to www.wacom.com/intuos.

Pixologic partners with Vancouver Film School

Maker of the award-winning ZBrush announces educational partnership

Students on the Animation & Visual Effects programmes at Vancouver Film School (VFS) will now benefit from an official partnership with Pixologic, the geniuses behind the 2D/3D sculpting, texturing and painting software, ZBrush. As the first of its kind in Canada for Pixologic, the deal will give students full access to educational licences, the latest tools available in ZBrush, as well as upgrades and technical support.

VFS's Managing Director Marty Hasselbach, said: "This partnership really allows us to take advantage of what Pixologic brings to the table with their products. It also allows Pixologic to benefit from what VFS does, and that is create fantastic work using their product."

VFS is world renowned for its graduates, who have gone on to work on the likes of *District 9* and *Avatar*, making the school an obvious choice for their first Canadian partnership. For more information on the announcement visit www.vfs.com/pixologic, and to find out if schools in your area teach ZBrush, check out the listings at www.pixologic.com/zclassroom/schools.

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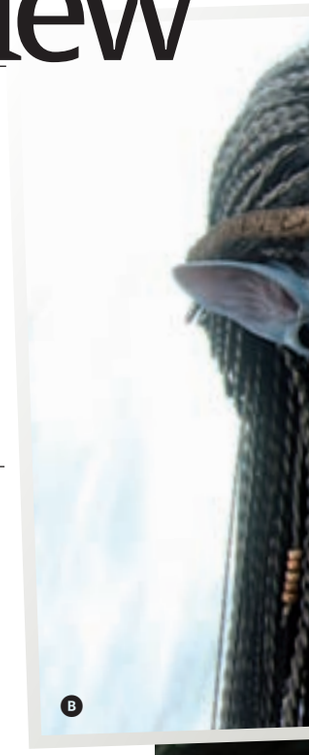
Industry insider

Tamir Diab

Lighting Technical Director for Weta

Each issue, **3D Artist** finds out how the top people in the 3D industry got their jobs and what you need to know to get a foot in the door



B

About the insider

Job Lighting Technical Director

Education University of Maryland College Park (majored in Psychology), Vancouver Film School

Company website www.wetanz.com

Biography Born in 1976 in Silver Spring, Maryland, USA, to parents who had migrated from Alexandria, Egypt. I attended University of Maryland College Park and majored in Psychology. After a short stint of work in Public Health Research at George Mason University, I decided to learn film editing and also enrolled in a part-time introduction to 3D class. I was hooked and decided to go to Vancouver Film School where I enrolled in the 3D Animation and Digital Effects course

A

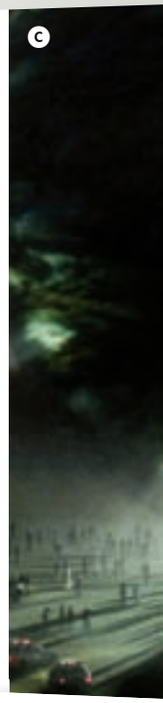
An awful lot of people worked on James Cameron's *Avatar*, and one of them was Lighting Technical Director Tamir Diab. Tamir's job at world-famous Weta involves setting the mood and tone for a shot or series of shots using different types of light, colour and shadows. This varies, based on whether the film is an animated feature or if it involves matching to a live action plate. Tamir takes direction, from a sequence lead or supervisor, that is in line with what the director would like for any specific sequence in a film and sets the mood. One of his biggest challenges is always trying to get proper continuity, as most times there are several artists working on the same sequence.

3D Artist: *Did you have an artistic family or background?*
Tamir Diab: "My father had a profound affect on me in terms of art and music. We were encouraged to draw and play the piano. As a child, I remember always wanting to be outdoors and near the water. I had a very vivid imagination, always creating worlds in my head. That's where my imagination ran riot."

3DA: *What kind of course did you do at university, or what training did you do?*
TD: "I attended the Vancouver Film School in British Columbia, Canada. I enrolled in the 3D Animation and Digital Effects course and specialised in the visual effects stream. There we studied fundamentals in classical 2D animation, sculpture, storyboarding, 3D modelling techniques, 3D animation and digital compositing In addition to having great instructors, VFS regularly brought in industry professionals to speak about different aspects to the 3D industry. Their talks were excellent as they showcased the visiting company's work as well as opened questions and answers for students."

3DA: *For today's generation of students, what is the kind of educational grounding they should be looking for to work in the field of lighting for 3D/CGI?*
TD: "I would recommend a set of courses that give you a good understanding of all aspects of 3D. Even if lighting is your goal it is always handy to know the other steps in the entire process. Working on large films often calls for at least some knowledge of the other departments. As for lighting, one should try to familiarise oneself with lights in whatever program they are using, what the benefits are to using those specific lights – spots, area, IBL etc. One of the most important things for a lighter is gaining experience with whatever renderer they are using, be it RenderMan, mental ray or what have you. Knowing your renderer will allow you to optimise render times and make your job more efficient."

3DA: *What were you doing before you joined the company and how did you get the job with Weta?*
TD: "After graduating from Vancouver Film School in 2002, I moved back to the Washington DC area. While I was waiting for a 3D job, I decided to apply for a couple of internships to get some graphic and motion graphic design experience. For a few months I interned at the National Geographic Channel as well as a company called Henninger where I got to contribute to projects that aired on the Discovery and History Channels. I finally got a job modelling and rendering 3D buildings at an architectural visualisation company named Interface Multimedia in Takoma Park, Maryland. While I was at IFMM, I saw an online job posting for a two-month stint at a commercial company in Manhattan, New York named Hornet Inc. It was a BMW X5 commercial with angels flying by the car and it was to be a combination of 3D and live action – just what I wanted to do in school! I still remember getting that first commercial job being a huge turning point in my career. I worked on several other commercials in New York and then decided to give feature film a go. I applied and was lucky enough to get onto *The Adventures of*



C

D

Portfolio highlights

Tamir has worked on some very high-profile projects including:

2009 *Avatar*
2008 *The Day the Earth Stood Still*
2007 *The Golden Compass*
2007 *The Waterhorse*
2006 *The Ant Bully*
2006 *Ice Age 2: The Meltdown*
2006 *Stay Alive*
2005 *The Adventures of Sharkboy and Lavagirl*
2004 *BMW Angels commercial*
2003 *Rockets Redglare*

A *Tamir's work on The Ant Bully and other films helped him to get the job at Weta*

B *Tamir's job on Avatar was to set mood and tone with lighting and colour*

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Credit: Weta. Copyright: 20th Century Fox Film

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Sharkboy and Lavagirl where I did a bit of 3D work in Santa Monica. After that, I worked on a few other films including *Ice Age 2*, *Stay Alive* and *The Ant Bully*. A few months after wrapping on *The Ant Bully*, Siggraph came to Boston on the east coast. I decided to go and got to interview at a Weta Digital booth there. A few months later, they contacted me about joining their team for a project called *The Waterhorse*! I was of course delighted and jumped at the offer."

3DA: *How much of a culture shock is to work at somewhere like Weta, a world-famous company, compared to being a student for example?*
TD: "When I got to Weta Digital I was definitely in awe. I still remember getting my first assigned shots on *The Waterhorse*. I was so excited and also a bit overwhelmed. Here I was at one of the best companies in the world. I remember going to see *Lord of the Rings: The Fellowship of the Ring* in school with fellow students and just being so absolutely blown away by the work done. The greatest thing, though, was how quickly I felt welcome. Aside from having some of the most talented minds in the business, I noticed instantly how down to earth everyone was."

3DA: *What software packages and tools do you use at Weta?*
TD: "I can say that we use Maya for 3D and use a combination of Shake and Nuke for 2D. The other tools are proprietary and have been developed by Weta."

3DA: *What are the key skills required to work as a lighting artist?*

> "I think about it sometimes and it hits me: I got to work on one of the most successful films of all time!"

TD: "You hear that you need a good eye to be a good lighter. I think a lot of that is having an understanding of what story a specific shot is trying to tell. A combination of the composition of a shot along with the colours really set the mood. A solid understanding of colour is key. Another thing that always comes up when you're working with characters is perhaps the most important thing, which is selling the eyes. A lot of this comes from the shaders/textures, but adding a bit of light when it suits, to get a bit of a glint, can add life to an otherwise lifeless character. Once you start looking at how light hits objects in the real world and how their shadows are cast, you'll challenge yourself to try and imitate that in 3D."

3DA: *Professionally, what's the most satisfying project you've worked on and why?*
TD: "On a professional note, I would have to say that *Avatar* has been the most satisfying 3D project I've been a part of. The sheer quantity of models, designs and technology that went into making this film has had me in awe since I started on it over a year ago. Although the hours got crazy at times, it was always a treat to come into work and see a new piece of animation or a new environment that had been set up. Seeing what the guys that dealt with the facial animation were up to, or a wonderfully rendered shot, was something that you could really sink your teeth into and get excited about. I did my best to resist the urge to watch sequences of the film before it was released in its entirety in the theatres. As a result, when I went to go see it I felt like a kid again, going to watch a really fun 3D movie filled with beauty and imagination. I think about it sometimes and it hits me: I got to work on one of the most successful films of all time! I'm very lucky to have been a part of that!"

3DA: *Finally, what would be your dream project to work on?*
TD: "I would love to create something of my own one day. I often think about making a film or short film that deals with some topics that are very close to me. These include tackling interreligious exploration as it's a cause of such strife in the world we live in today. I'm very interested in filmmakers like Neill Blomkamp who I've followed since I was in school. I have a few ideas roaming around in my head. I just need to buckle down and make it happen!"

C *At Weta, Tamir has worked on several movies, including The Day the Earth Stood Still*

D *Tamir was Lighting Technical Direct on Avatar, one of the biggest films of all time*

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+ The best courses and freshest talent from universities around the globe...

Supinfocom

This prize-winning French film school offers some excellent opportunities for students from France as well as a selection of other countries

An incredible working atmosphere at Supinfocom allows students to fully immerse themselves in the curriculum. Over a period of five years, attendees at the computer graphics university can work towards a diploma of digital direction, studying at one of the Supinfocom group's three campuses: Valenciennes and Arles in France, and Pune, India.

The five-year structure includes a two-year foundation course of preparatory studies, followed by three years of specialisation at advanced level covering 3D animation, special effects and digital direction. Those who successfully complete the full program receive a diploma equivalent to a five-year degree, and as an added benefit the international campuses also offer flexibility for students to change location after completion of their foundation studies. This, along with partnerships with Vancouver Film School (Canada) and Nanyang Polytechnic (Singapore), gives Supinfocom a strong foothold in both France and overseas.

Supinfocom's goal is 'to train the professionals of the future in the world of digital animation'. Through training provided by industry professionals, the aim is to help students develop their creativity and artistic background; to master the tools of the trade – notably Photoshop, Illustrator, 3ds Max, After Effects, Maya, etc; to learn to work as part of a team, and to gain the various important experiences inherent in film direction. The innovative educational programme follows project-based plans, in tune with the professional world. The expert skills that students graduate with, as well as internship opportunities with some of the most important companies in the industry both in France and overseas, allow immediate professional integration and fast career development for Supinfocom's alumni.

With the school offering such great prospects for its students, getting onto the courses is undoubtedly difficult, as Mathieu Renoux, Supinfocom graduate has said: "Supinfocom is hard to get in to, but when it happens you know why you're there. You're surrounded by wonderful teachers who know their craft, and students that are extremely talented and motivated – all that makes you work harder to get to the jury with the best film possible!"

The courses are continually assessed, and in the final year of the higher education programme students must face a jury composed of external professionals. With no possibility of repeating years, the pressure is on for Supinfocom students from the start, aptly reflecting real life in the industry.

However, what students work for – and leave with – is a complete film for their showreel, created in the final year of their higher study. This is the ammunition they need to get the job of their dreams. Made in teams of three or four, many past graduate films have gone on to win awards at various prestigious film festivals, confirming Supinfocom's status as one of the leading international computer graphics universities.

"Doing a five-minute animation film is quite tricky," Romain Segaud, Supinfocom graduate, has said. "But the first years of study helped us to organise and find the best solutions for every problem."

Visit the official website at www.supinfocom.fr for further information about the school and course structures.

> "Studying at Supinfocom has been a great experience. All the teachers understand that by creating really well-mixed groups of people, they can get really good films"
>
> **Romain Segaud,** Supinfocom graduate

SUPINFOCOM

Supinfocom is supported by the Chamber of Commerce and industry of Valenciennes

Course details

Name Foundation course
Length Two years
Fees Entrance exam fee – €120
Year one – €5,190
Year two – €5,190
ENTRY REQUIREMENTS
A-levels or equivalent

Name Digital Direction, higher education course
Length Three years
Fees Entrance exam fee – €120
Year one – €7,023
Year two – €7,023
Year three – €7,023
ENTRY REQUIREMENTS
Access after a validated foundation course, or by taking an entrance exam after a two-year degree or professional experience

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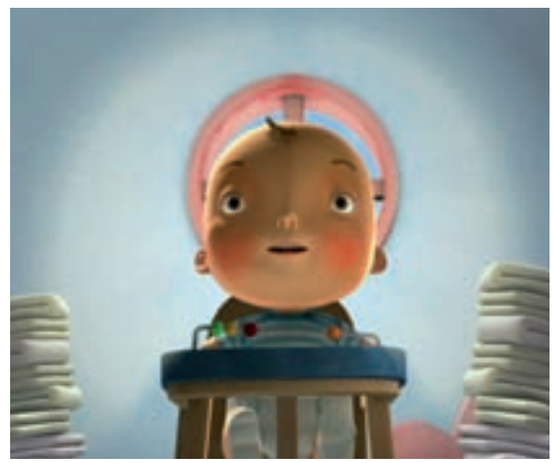
A

B

C Anima
» **Rémi Devouassoud, Julien Lasbleiz, Eliot Kajdan, Nicolas Maurice**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

D

E



F

A Gary
» **Yann Benedi, Quentin Chaillet, Sébastien Eballard, Clément Soulmagnon**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

B A Dada
» **Hélène Astier, Mathilde Le Moal, Bruno Pontiroli, Jia Jun Shen**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

D Bave Circus
» **Philippe Desfretier, Nicolas Dufresne, Martin Laugero, Sylvain Kauffman**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

E Facteur Mineur
» **Geoffrey Skrajewsky, Marc Czerwiec, Arnaud Joli, François Ruiz**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

F Comment se Débarrasser de Son Petit Frère
» **Céline Ternisien, Florian Charlet, Maxence Verniers, Sylvain Leclercq**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

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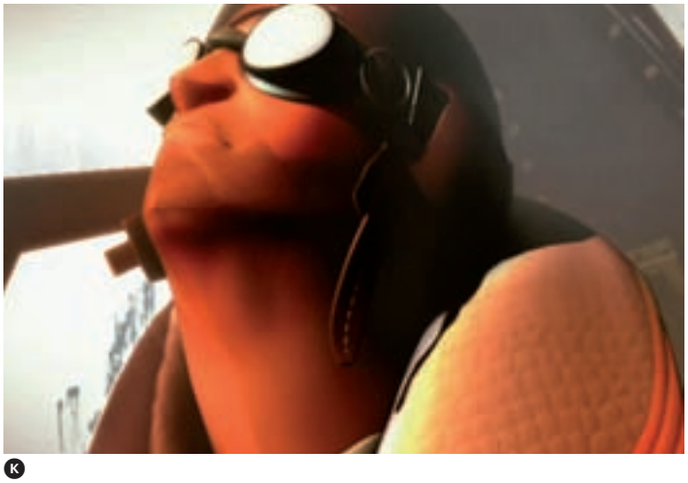
G Guerre Naïve
» **Wei Bi, Bruno Mayor, Rémi Danneels, Rémy Dubois**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

H

I

J



K

L

H Joséphine
» **Nicolas Decatoire, Nicolas D'Haussy, Solène Chan-Lam, Martin Uytterbroeck**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

I La Peste
» **Olivier Dubocage, Michal Firkowski, Benoit Galland, Gildas le Franc**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

J Tokoloshe
» **Rémi Cauzid, Julien Jobard, Stéphanie Saillard, Vivien Testard**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

K Yankee Gal
» **Céline Desrumeaux, Antoine Pérez, Gary Levesque, François Pons**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

L Taste of Surimi
» **Pierre-Alain Dubois, Thibaut Floutier, Gérôme Payen, Jean-François Leroux**
Course: Digital Direction
Time taken: One year
Year of graduation: 2008

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M

N

O

P Loop
» **Vincent Baertsoen, Charles Blanchard, Julien Rancœur, Emilie Boyard**
Course: Digital Direction
Time taken: One year
Year of graduation: 2004

Q

R

M Al Dente
» **Maël Francois, Carlos Felipe Leon Ortiz, Jean-françois Barthelemy**
Course: Digital Direction
Time taken: One year
Year of graduation: 2007

N En Tus Brazos
» **Matthieu Landour, François-xavier Goby, Edouard Jouret**
Course: Digital Direction
Time taken: One year
Year of graduation: 2006

O 90°
» **Jules Janaud, Raphael Martinez Bachel, François Roisin**
Course: Digital Direction
Time taken: One year
Year of graduation: 2005

Q Overtime
» **Oury Atlan, Thibault Berland, Damien Ferrie**
Course: Digital Direction
Time taken: One year
Year of graduation: 2004

R Workin' Progress
» **Benjamin Fligans, Benjamin Flinois, Gabriel Garcia, Geordie Vandendaele**
Course: Digital Direction
Time taken: One year
Year of graduation: 2004

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Studio Access

Black Rock Studios

Joe Palmer of Black Rock Studios explains the role of the Technical Artist at a videogames development company

Black Rock Studio, formerly known as Climax Racing, was established in Brighton in early 2000 and is one of the industry's premier racing studios. Now part of Disney Interactive Studios, an affiliate of the Walt Disney Company, Black Rock Studio produces original racing games

www.blackrockstudio.com

Country UK

Technology has always influenced the arts. Throughout history, artists have adapted new tools and techniques, such as with the advent of perspective and oil painting in the 15th Century, and the mass production of synthetic colours in tubes in the 19th Century, which gave the impressionists new colours and the freedom to work outside of the studio.

Viewed from the broad perspective of history, the computer is a new medium, like mosaic, tempera and oil paint once were. Artists who have embraced this new medium over the last half century have had to adapt to evolving technology, creating new techniques to solve new problems. Computer games are arguably at the forefront of this evolving medium, with many new techniques being devised by programmers and artists working in the videogames industry. But in the past few years, the opening up of the computer graphics pipeline – not to mention the sheer quantity of art assets being processed – has seen the emergence of a distinct cadre of artists who straddle the art and technology disciplines.

They come from diverse backgrounds. Some started out as artists or animators, but made the transition to technical artists during their career. Others are computer science graduates with a passion for graphics. These creative people who can also speak the language of the programming team – known as technical artists in game development – now play an indispensable role in most studios. If it sounds like a job for you, here are some tips on how to become a technical artist.

Key people

Joe Palmer
Technical Artist

> "Artists who have embraced this new medium over the last half century have had to adapt to evolving technology"

Why become a technical artist?

Producing good artwork for games is not just a matter of applying traditional painting, design and sculptural techniques to a new medium. Although these skills are essential, it's also necessary to be able to use the tools effectively and understand the constraints of a real-time medium, in an increasingly complicated field. Even tackling something as commonplace as the ubiquitous normal map requires a leap into a more abstract world of tangent spaces and face normals.

Artists who can understand these concepts can manipulate the technology at a deeper level, whether by writing shaders, creating new effects, procedural techniques or automating processes with scripts. The result is better game visuals, whether produced by the technical artist or by the other artists their work unlocks and supports. There are so many areas that a technical artist can contribute to, such as day-to-day troubleshooting, teaching and training, research, testing and many more. Yet there is currently a big shortage of technical artists in the games industry. It's not easy to hire new graduate artists to fill the role either: there are few academic routes to bring technical artists into games.

Earlier this year I got the opportunity to join Black Rock's Core Technology Group (CTG), a centralised service that produces tools and infrastructure to support our game teams. I was previously a lead environment artist working on our last game, *Pure*. But, for the reasons I've discussed, I leapt at the

portfolio highlights

A summary of games developed by Black Rock Studio in recent years

2010 *Split/Second (Xbox 360, PS3)*
2008 *Pure (Xbox 360, PS3)*
2007 *MotoGP '07 (Xbox 360, PC)*
2006 *ATV Offroad Fury 4 (PS2)*
2006 *ATV Offroad Fury Pro (PSP)*
2006 *MotoGP '06 (Xbox 360)*
2005 *MotoGP3 (Xbox, PC)*
2004 *ATV Offroad Fury 3 (PS2)*
2003 *MotoGP2 (Xbox, PC)*
2003 *The Italian Job (PS2, Xbox, GameCube)*
2003 *ATV Quad Power Racing 2 (PS2, Xbox, Gamecube)*
2002 *Rally Fusion (PS2, Xbox)*
2002 *MotoGP1 (Xbox, Xbox Live, PC)*

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The Core Technology Group

There are four teams in Black Rock's Core Technology Group (which supports the studio's ongoing game teams as well as developing risky new technology): Engine, Tools, Infrastructure and Audio. The biggest team comprises eight people. Our priorities are decided by the game teams' technical directors together with CTG's technical director. Each day begins with a 15-minute stand-up meeting. The previous day's progress is discussed, and we also look ahead to the next 24 hours. In particular, any blocking issues are highlighted. Blocking issues are problems that must be resolved now because they are hindering the progress of other staff. Either team members or the producer deal with blocking issues immediately.

CTG tackles bugs in two ways. The most important rule is that unless it is a blocking bug – ie unless it is stopping anyone in the studio from working – then bugs are dealt with once a sprint, where the whole team works on bugs for a day. Each team has a task board. This is updated by the team members to show the status of each of the User Stories' tasks. We also do Sprint Reviews, but rather than the typical processes of signing off stories with the Product Owner, we use them as a chance to communicate with the other CTG teams and the studio as a whole. Internally, we call this 'Show and Tell', since it comprises both short presentations and desk-side demonstrations. As part of the Agile process, the team has Retrospectives for team-led self-improvement. We also get to spend a certain amount of time per month on our own R&D. Taking a leaf out Google's book, these periods enable us to explore new areas that interest us.

chance to become the group's technical artist. I knew there would be challenges. I was moving out of an art team, into a new team where I would be the only artist. And as it turns out, one of the toughest challenges has not been writing scripts or shaders, but rather trying to understand and see ways to improve the complex workflows of artists.

In the CTG, we try to understand where bottlenecks are occurring and then we figure out how to remove them. This benefits the art team by enabling quicker iterations and reducing frustration. Technical artists can also help the programming teams by providing insight into the end-user experience. We understand how artists work, what their priorities are and how those priorities shape the workflows. What may appear to be a convoluted workflow to a programmer might be explained by the artist's desire to push the quality of their results that extra five per cent that makes the difference between good and great artwork. On the flipside, a technical perspective on the tools can help the artist understand the difference between trivial feature requests, and changes that will be more difficult to implement.

Complex systems like artists' workflows are just one of the new subjects a would-be technical artist may have to tackle. Few games artists will have had any previous exposure to these sorts of problems, and since existing artists in some studios are currently providing many of the raw recruits to bolster the ranks of technical artists, it's crucial to offer internal training to address the knowledge gap.

Many artists come from a fine art background, and we often learn our way around computers on the job. We don't have the technical training of the programmers. I've had an interest in programming for many years, but maths was not a subject I enjoyed at school, and trigonometry seemed like something I would never need again.

How wrong I was: graphics programming is a very mathematical discipline. Not all technical artists are going to need mathematical training, but I would suggest that it is a useful addition if they have the interest. Proper instruction is invaluable – I've seen the benefits first-hand. Since Disney bought Climax Racing to create Black Rock, the level of training provided here in Brighton has really grown. Disney has also collaborated with Sussex University to give us expert training on the areas of mathematics that relate to computer graphics, such as vectors, matrices, transformations and calculus. I now have a deeper understanding of what is possible with shaders. I'm not alone in this – several of us now regularly write prototype shaders, which means we can test out our ideas without having to schedule code time.

Creating new and better tools

Today my main responsibilities within CTG are supporting the teams in their daily art needs, and communicating within and outside of CTG to represent the end-user perspective. Understanding the end users – the artists – is one of the greatest benefits that a technical artist brings to a tool development team. It helps CTG to address all sorts of usability issues. Beyond the day-to-day concerns, at Black Rock we've always put a long-term emphasis on designing professional tools. Part of this entails recognising the importance of stability, and in CTG we have set bug-fixing days, where any critical bugs that have been discovered are sorted out.

Another key role for technical artists within a central services department like CTG is communicating what we've been working on back to the artists. In large organisations, where new technology is constantly being developed, it's vital that information gets out to the artists and designers in a language they understand.

Joe Palmer has worked in the games industry for ten years, with stints at LEGO, Virgin Interactive and Computer Artworks prior to his current role as a technical artist in the CTG at Disney's Black Rock Studio. Joe was a lead environment artist on Black Rock's critically acclaimed debut game, *Pure*.

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